1988

Nebraska Policy Choices: 1988

Russell L. Smith
University of Nebraska at Omaha

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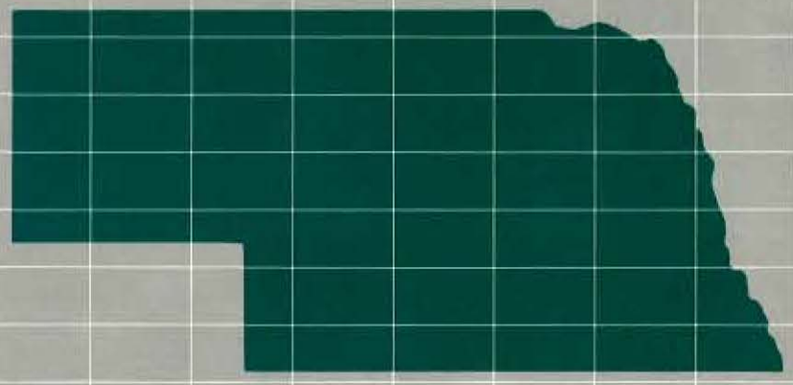

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NEBRASKA POLICY CHOICES

1988

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Nebraska Policy Choices: 1988

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FOREWORD

Welcome to the third volume of *Nebraska Policy Choices*, a publication of the Center for Applied Urban Research. We are pleased that faculty from throughout the University of Nebraska continue to contribute chapters, and I believe you will find their analyses of policy issues to be both relevant and comprehensive.

The authors have helped us identify and examine current issues confronting policy makers in Nebraska. In addition, they have examined those forces at work to shape our future. The subjects in this volume range from human service issues to state finance and economic development issues. The diversity of the chapters illustrates the complexity of our society and the difficult decisions policy makers face today.

The irony of a publication on current policy issues is that, often, new issues develop before a chapter or book is completed. I take this opportunity to encourage our readers to help us identify emerging policy issues so that we can continue to address relevant topics.

On behalf of the College of Public Affairs and Community Service, I salute the authors, and the faculty and staff of the Center for Applied Urban Research, for sharing their time, talents, and insights.

David Hinton, Dean
College of Public Affairs and Community Service

CONTENTS

PREFACE

The six chapters in *Nebraska Policy Choices: 1988* contain the work of eight faculty from the University of Nebraska's Omaha and Lincoln campuses. These faculty, like the twenty-five faculty who wrote chapters for the previous two annual volumes, are some of the leading experts in Nebraska in their respective areas of interest.

Publication of this year's volume culminates roughly fifteen months of planning, research, writing, and editorial activity. In fact, work on the prison overcrowding and water sales chapters has been underway since early 1987.

The process of assembling the 1988 volume began with conversations about the major issues facing Nebraska with key informants from local and state government, business, community organizations, and the University of Nebraska. Two statewide strategic planning projects — the Nebraska Unicameral's New Horizons for Nebraska and the Nebraska Press Association-Peter Kiewit Foundation's New Seeds for Nebraska — also provided much information about important Nebraska issues.

As with previous volumes in the *Nebraska Policy Choices* series, our first goal was to identify issues for which the public needed increased understanding of the dynamics and trend, and to better understand policy options for handling the issue. This reconnaissance work resulted in the identification of many important policy issues; unfortunately, this year's volume can only treat a few of the possible topics.

One of the most distinctive features of the *Nebraska Policy Choices* series is that it represents the only multi-year effort in Nebraska to bring university faculty expertise to bear on a broad range of public issues facing Nebraskans. But this strength is also a limiting factor, because while the issues suggested to us generally set the broad parameters of each annual volume's contents, other factors inevitably come into play: faculty interests and ability to meet rather tight time lines, institutional and departmental priorities, and research budgets and data limitations, to mention just a few. The topics addressed in *Nebraska Policy Choices: 1988* thus represent a blend of what key informants felt were issues which needed to be addressed and what could be realistically done within a rather limited window of time.

Regardless of where your interests lie, I hope you will be stimulated by *Nebraska Policy Choices: 1988*. The six chapters present a range of findings and policy choices. In this preface I want to highlight several of them.

Once again, I think the chapters illustrate that in-depth and objective analysis of policy issues can yield insights that promote consideration of policy choices, going beyond those that fall within the so-called conventional wisdom of the times. For example, rather than simply building prisons in response to prison overcrowding, the state can pursue additional policy

options, including the Intensive Supervision Parole alternative presented in Dennis Hoffman and Vincent Webb's chapter, "Prison Overcrowding in Nebraska: The Feasibility of Intensive Supervision Parole." They point out very clearly that this alternative can be developed in such a way that it provides punishment and rehabilitation at one-third to one-half the cost of building additional prison space. While such a strategy would apply only to a subset of all persons sentenced to Nebraska's prisons each year, millions of dollars would be saved.

"Child Day Care Policy Issues in Nebraska," by Christine Reed, also illustrates the benefits of careful analysis. For example, Nebraska policy makers have recently been focusing on strengthening regulatory standards for day care centers. Yet Reed's analysis indicates that a majority of Nebraska preschoolers of working parents are in day care homes, not in day care centers. Policy changes oriented primarily, or even solely, to centers may miss the mark. This information leads Reed to suggest policy choices that go beyond what is routinely discussed.

Another theme common to this year's volume is the interconnectedness of public issues today. James Schmidt's chapter, "Farm Income and Government Payments to Agriculture in Nebraska," clearly points out how Nebraska's economy continues to be very much intertwined with agriculture. In fact, it is so interconnected that recent increases in direct government farm payments have helped the state post reasonable, although not spectacular, rates of personal income growth. At the same time, Schmidt's research highlights how the state's economy, particularly in agriculturally dependent counties, is vulnerable to shifts in federally controlled agricultural policy. The implications of this interconnectedness range from the need for broad-based economic diversification throughout the state to the need for targeted rural development and local government fiscal assistance in counties most reliant on agriculture.

Jerome Deichert's chapter, "Rural-Urban Linkages: An Assessment of State Government Revenue and Expenditure Patterns," also highlights issues of interconnectedness by looking at patterns of Nebraska state government's revenue and expenditure actions. Deichert's research demonstrates that revenue and expenditure programs affect metropolitan and rural areas differently. Furthermore, some of these actions produce outcomes that are counter to current perceptions. For example, it is often assumed that the state's rural counties get short-changed when it comes to state expenditures. Deichert's analysis indicates that this is mistaken, and that rural counties (those without a city of at least 2,500 population) get proportionately more than would be expected, given their share of Nebraska's population and personal income. State government revenues are thus being redistributed among the counties and areas of the state.

Finally, several of the chapters highlight how certain assumptions underlying state policy actions can be challenged and are in need of redefinition and fine tuning. This can lead to consideration of additional policy options. David Aiken's chapter, "Selling Nebraska's Water: Water Sales, Transfers and Exports," contends that recent water export legislation in Nebraska was possibly hasty and based on an overly narrow interpretation of the U.S. Supreme Court's decision in *Nebraska v. Sporhase*. He argues that the Sporhase decision allows states the latitude to establish a limited preference for instate water uses. As a result, it is not clear that Nebraska must establish a water export framework that facilitates the selling of water. Second, Aiken argues that it is questionable whether Nebraska has surplus water which should be used to fund additional water resource development, particularly if the development is for additional irrigation. By challenging these assumptions, Aiken is able to set forth additional policy choices for Nebraskans to consider.

"The Importance of Interstate Highways to Economic Development in Nebraska," by David Ambrose and Louis Pol, challenges current thinking in Nebraska about interstate highways and economic development. In particular, Ambrose and Pol argue that recent decisions to develop additional four-lane or interstate-like highways in Nebraska may fail to yield the benefits which are expected. Using longitudinal county-level data, Ambrose and Pol find that the link between interstate highways and indicators of economic development are generally weak, and that the link is strongest in counties which are large enough to take advantage of interstate-induced growth impulses. Their advice is that policy makers should act slowly and carefully before spending money on additional four-lane highways in Nebraska, particularly in the name of economic development.

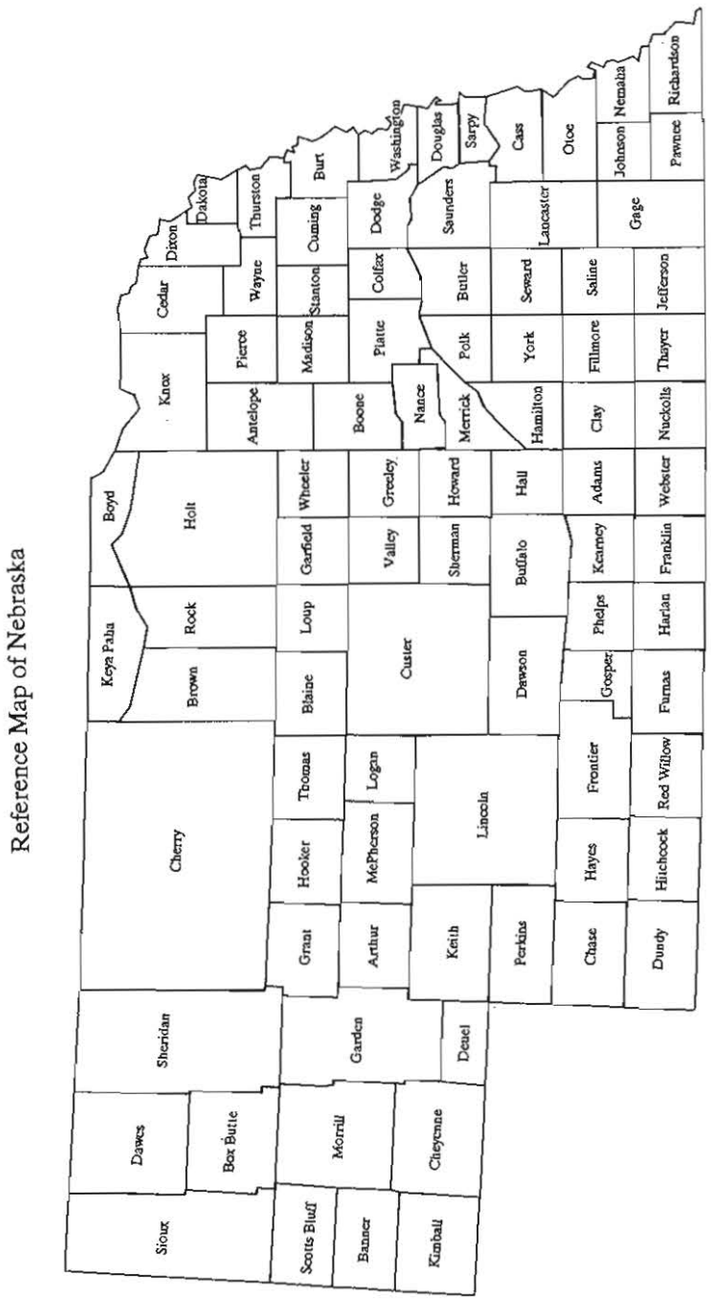
In closing, I want to thank the many individuals who made this year's volume of *Nebraska Policy Choices* possible. Over 25 individuals in business, community and professional organizations, government, and the academic community took time from their busy schedules to visit with me about important public issues facing Nebraskans. Additional persons acted as technical reviewers of early chapter drafts (a list of reviewers is included at the end of the volume). While the chapter authors didn't always agree with what the reviewers had to say, the outcome in every case was a much better chapter. To these volunteer advisers goes a hearty thank you!

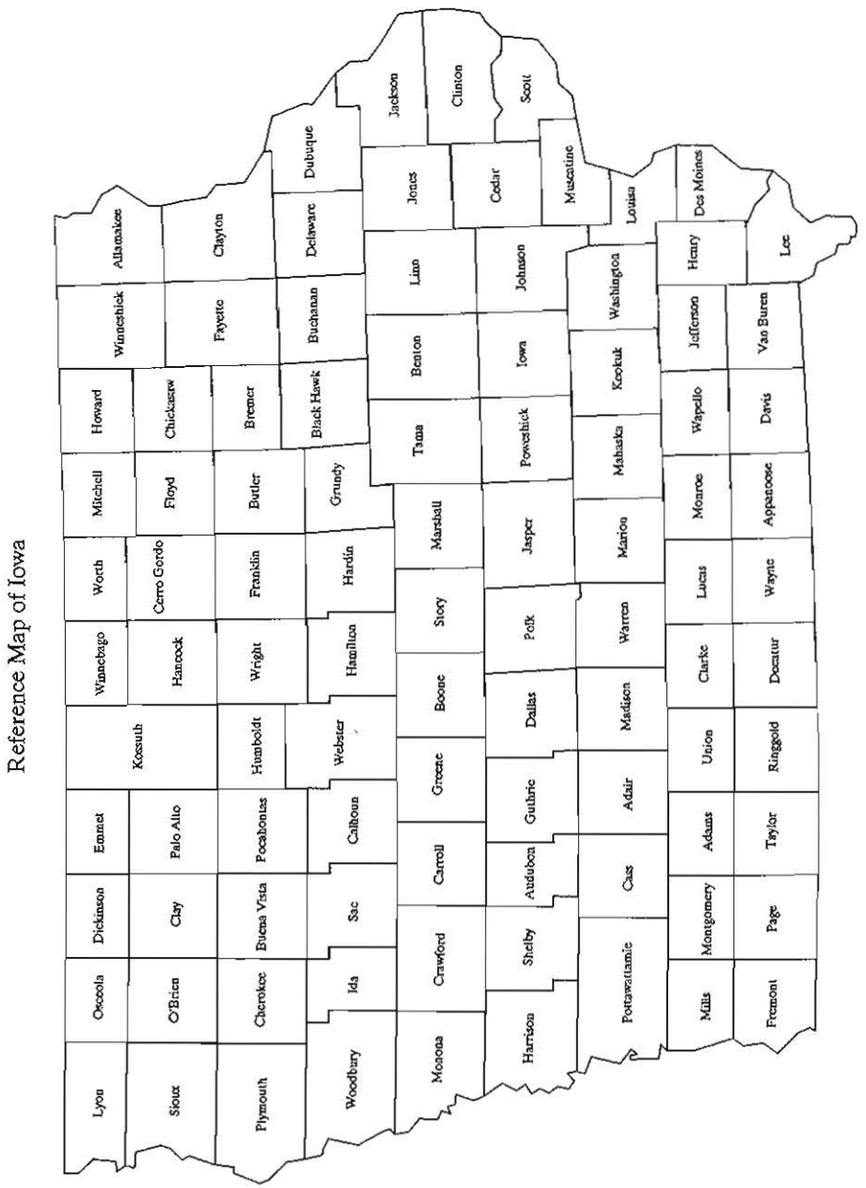
Special thanks must also go to the staff of the Center for Applied Urban Research, who worked many hours to see the 1988 volume translated from rough ideas into what is now a polished product. They are Margaret McDonald Rasmussen — the person who handled most of the editorial tasks — and Gloria Ruggiero and Sharon deLaubenfels, who assisted in editing the chapters; Joyce Carson, who performed the bulk of the word processing and layout; Tim Himberger, who helped with maps and figures; and Betty

Mayhew and June Turner, who helped with the numerous administrative and support tasks that are inevitably a part of the annual volume process. No better group of staff persons exists anywhere.

Finally, Chancellor Del Weber, Vice Chancellor Otto Bauer, Dean David Hinton, President Ronald Roskens, and the University of Nebraska Board of Regents have continued to encourage this project. Their leadership and interest, particularly that of Dean David Hinton, are greatly appreciated.

Russell L. Smith
Omaha, Nebraska
November, 1988





PRISON OVERCROWDING IN NEBRASKA: THE FEASIBILITY OF INTENSIVE SUPERVISION PROBATION

1

Dennis Hoffman
Vincent J. Webb

This chapter analyzes the magnitude and causes of Nebraska's prison overcrowding problem. Nebraska's response to this problem has been to expand prison capacity and to implement programs to decrease length of stay. Another policy option — reducing prison admissions through intensive supervision probation — is examined in this chapter. Data from Nebraska Parole Board files indicate there is a category of current prison inmates that are not sufficiently dangerous to require imprisonment. Many of these nonviolent offenders with marginal criminal histories could be diverted into intensive probation programs that are more cost-effective than incarceration.

Introduction

Prison populations in the United States are higher than ever before and growing fast. During the 1978-85 period, state prison populations increased from 270,025 to 463,378 inmates. Expenditures by state correctional systems exceeded $8 billion in 1985 (Zedlewski 1987).

At present, inmate populations exceed cell capacities in almost all states. As of February 1986, forty-six states and U.S. territories either were under court order or were involved in litigation concerning prison conditions that could result in court orders (American Civil Liberties Union Foundation 1986). Conditions related to overcrowding are central to a majority of these suits.

Some state prisons, such as New York's Sing Sing Prison, have been the sites of overcrowding-related disturbances in the 1980s (Kurlander 1983). In fact, a frequent argument against overcrowding is that it leads to prison riots.

Nebraska is one of the few lucky states. Even though its prisons are filled beyond capacity, there have been no court orders or inmate riots yet. Correctional policymakers in Nebraska still have the opportunity to take a proactive approach in regulating the prison population before it gets out of control.

The authors would like to acknowledge the help of Frank Gunter, Chuck Cornwell, Ron Bartee, Nikki Reisen, Robert Keller, Stacey Oakes, and Tracy Anderson.

Many strategies for alleviating overcrowding are available to Nebraska policymakers. The traditional response to prison overcrowding has been the construction of additional prison capacity (Blumstein 1983). Other strategies have been devised to regulate the flow of admissions to prison or to control the length of time served. Strategies for controlling prison admissions include revising sentencing law and practice (for example, changing sentencing guidelines), developing alternative sanctions, and using private prisons. Strategies for regulating time served range from efforts to speed up the parole process to attempts to improve classification and expand prerelease programming (Mullen 1987).

Correctional policymakers in Nebraska still have the opportunity to take a proactive approach in regulating the prison population before it gets out of control.

This chapter analyzes the feasibility of Intensive Supervision Probation (ISP) as an alternative sanction. ISP is an intermediate form of punishment that permits certain offenders to serve their prison sentences in the community rather than in prison.

The focus is on ISP for two reasons. First, ISP promises to "get as many people out of prison and off taxpayers' backs as possible" (Conrad 1986, 83). For Nebraska— a state with a limited population base and limited resources — ISP is a potentially useful austerity measure. Second, dependable information is available on the cost-effectiveness of ISP. As yet, knowledge is sketchy and incomplete about other alternatives to prison that have been developed in the 1980s.

This chapter begins with an overview of the Nebraska prison overcrowding situation. Next, Nebraska's short-term prison population is described in order to determine whether Nebraska has a sufficient number of nonviolent offenders who could be placed in ISP without jeopardizing public safety. Following this needs assessment, the cost-effectiveness and political acceptability of ISP are examined. The chapter concludes with a summary of the major findings and a discussion of policy actions that Nebraska policymakers might take.

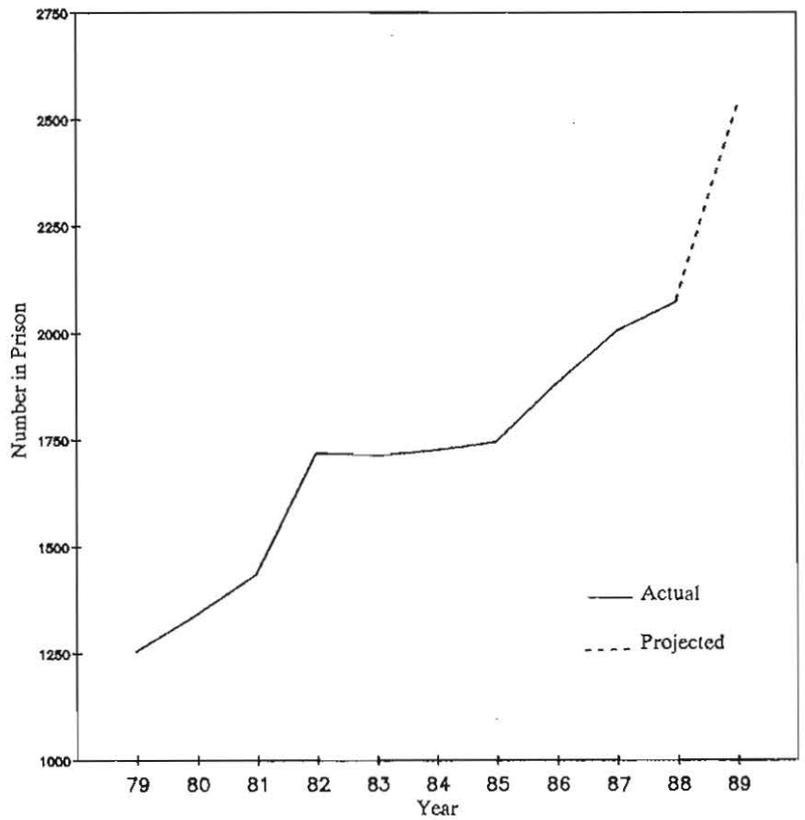
Prison Overcrowding in Nebraska

Nebraska's state prisons face an overcrowding problem. Understanding the magnitude of the problem, its causes, and the state correctional agencies' response to the problem is a necessary prelude to charting a course to solve the problem.

Prison Population Increases

Nebraska's prison population has soared since 1979. In November 1979, there were 1,256 inmates in Nebraska Department of Correctional Services (DCS) penal facilities (DCS 1986a). By June 30, 1988, the state prison population had risen to 2,077 (DCS 1988). This represents nearly a doubling of prison inmates in less than ten years (figure 1).

Figure 1 - Nebraska Prison Population, 1979-89



Several factors are responsible for the increases in Nebraska's prison population.

- Increasing Admissions. From 1980 to 1986 Nebraska experienced a 39.2 percent increase in the number of persons given prison sentences of one or more years (Bureau of Justice Statistics 1987). The 974 total admissions in 1987 represented an all time high for the Nebraska penal system (DCS 1987b).

- Increasing Probability of Imprisonment. Between 1980 and 1985, the ratio of prison commitments to reported crimes in Nebraska increased from 35 to 39 state prison admissions per 1,000 serious offenses (Bureau of Justice Statistics 1987).

- Rising Commitments for Drug Offenses, First Degree Sexual Assault, and Second Degree Forgery. From 1978 to 1987, the percentage of prison commitments for all drug offenses[2] increased from 5.8 percent to 14.6 percent; the percentage of commitments for first degree sexual assault increased from 3.0 percent to 9.3 percent; and the percentage of commitments for second degree forgery increased from 0.8 percent to 5.5 percent (DCS 1987b). Considering the federal government's recent allocation of nearly $1.5 million to criminal justice agencies in Nebraska for the enforcement of state and local drug laws (Nebraska Commission on Law Enforcement and Criminal Justice 1987),[3] commitments for drug offenses can be expected to continue to increase over the next few years.

- Increasing Lengths of Stay in Prison. The median[4] length of stay in Nebraska's prisons has steadily increased from 13 months in 1982 to 15 months in 1983,[5] 19 months in 1984, and 20 months in 1985 and 1986 (DCS 1986a).

- Declining Parole Rates. Between 1969 and 1983, parole rates (the percentage of hearings granted that resulted in paroles) in Nebraska were never lower than seventy percent. From 1984 to 1986, however, the parole rates of 63.98, 58.19, and 63.78 were substantially lower than the parole rates[6] in previous years (Nebraska Parole Board 1969-86).

Based on the assumption that criminal justice policy variables such as these will continue to influence prison population levels, DCS is currently projecting a year-end population of 2,541 inmates by 1989 (DCS 1986a). DCS also acknowledges that the population at the highest risk of imprisonment (males between the ages of 18 and 39) is expected to remain stable in Nebraska through 1990.[7]

Prison Overcrowding

Nebraska's prison population is increasing, but are its prisons really overcrowded? One way of measuring prison overcrowding is to compare the rated capacity[8] of an institution to its actual population. Table 1 indicates that when rated capacity is used as a yardstick, Nebraska's prisons vary in overcrowdedness. The Nebraska State Penitentiary and the Lincoln Correctional Center are the most crowded DCS facilities. The Nebraska State Penitentiary is 55.3 percent over capacity, while the Lincoln Correctional Center is 44.2 percent over capacity. The Omaha Correctional Center, at 22.1 percent over capacity, and the Nebraska Center for Women, at 10.7 percent over capacity, are much less crowded.

The Nebraska State Penitentiary
has seventy percent of the inmates housed
in less than sixty square feet per cell;
the Lincoln Correctional Center has sixty percent
of the inmates living in less than sixty square feet each . . . .

Another way of measuring overcrowding is to examine spatial density. Most standard-setting bodies, such as the American Correctional Association, require sixty square feet of living space for each inmate, which is roughly the size of a bathroom in an American home. To figure the percentage of inmates housed in sixty square feet or less in Nebraska's prisons, the following method was used: (1) DCS data were obtained indicating the average cell size is seventy-five square feet at the Nebraska State Penitentiary, seventy square feet at the Lincoln Correctional Center, and eighty-three square feet at the Omaha Correctional Center (DCS 1987c); (2) it was assumed that every inmate classified as a bed deficit (that is, being without his or her own cell) must share a cell with another inmate who is not classified as a bed deficit; (3) the bed deficit for each facility was multiplied by two to get the number of inmates sharing a space designed for single occupancy; and (4) that number was then divided by the total population of a facility to get the percentage of inmates living in sixty square feet or less.

This method shows that the Nebraska State Penitentiary has seventy percent of its inmates housed in less than sixty square feet per cell; the

Table 1 - Rated Capacities, Current Populations, and Bed Deficits of Nebraska's Prisons on February 17, 1987

Facility	Rated Capacity	Actual Population	Bed Deficit	Percent over Capacity
Nebraska State Penitentiary				
Inside NSP Facility	338	525	187	55.3
Trusty Dormitory	150	154	4	2.7
Lincoln Correctional Center	468	675	205	44.2
Omaha Correctional Center	240	293	53	22.1
Nebraska Center for Women	84	93	9	10.7

Source: Department of Correctional Services.

Lincoln Correctional Center has sixty percent of its inmates living in less than sixty square feet each; and the Omaha Correctional Center has thirty-six percent of its inmates housed in less than sixty square feet each.[9]

Corollaries of Crowding

Nebraska's prison overcrowding-related problems mirror the problems encountered by most states' prisons. First, the number of prisoners inside Nebraska's prisons places severe pressure upon the staff, support services, and financial resources of DCS. While the prison population has risen rapidly, there has not been a concomitant increase in facility staff to manage inmates (DCS 1986a). Generally, resources are becoming insufficient to meet the basic needs of inmates and the prison system (DCS 1986a).

Second, the potential for inmate violence in Nebraska's prisons may be increasing. The most comprehensive research on the linkage between prison overcrowding and inmate violence (Gaes and McGuire 1984)[10] concluded that "overcrowding . . . is the best predictor of assault rates," and that housing large numbers of inmates in dormitories (common areas) is related to higher levels of assault. At the Nebraska State Penitentiary about 150 inmates are housed in a dormitory (table 1), thus heightening the chances for inmate violence there.

Third, overcrowding adversely affects programming. Due to budget cutbacks, programming for inmates has been decreased rather than increased, even though the prison population continues to rise (DCS 1986b). Parole board members blame overcrowding for a shortage of opportunities for inmates to participate in work and rehabilitation programs (Alvarez and Wieseman 1987). DCS officials blame overcrowding as the cause of increased idleness and overclassification (for example, placing inmates in higher security levels than the inmates' behavior and background require) (Tewes 1987).

Fourth, prisoner litigation relating to crowded conditions is mounting, along with concern among correctional officials about the likelihood of a court order (Gunter 1987a). According to the DCS director, other states faced with similar overcrowding-related problems have been placed under court order (Gunter 1987b). Such litigation imposes costs on the state because these lawsuits require the resources of the state attorney general office as well as the court system.

Nebraska's Response

Nebraska's response to prison overcrowding has been to expand prison capacity and to create programs to reduce length of stay in prison.

Prison Expansion. For the most part, DCS has been trying to *build* its way out of the problem of prison overcrowding. It constructed the Omaha Correctional Center in 1984 to house 240 medium- and minimum-security inmates (DCS 1984-85). It also converted a vacant building on the Hastings Regional Center campus into a 160-bed, minimum-security prison in 1987.

DCS has been trying to build its way out of the problem of prison overcrowding.

Future DCS plans include building a 150-bed, minimum-security area within the compound of the Omaha Correctional Center and constructing a new 150-bed, minimum-security unit near the old reformatory in Lincoln (DCS 1986c). At completion (projected for the summer of 1990), system capacity is expected to be 1,959 male and female beds. Assuming the DCS projection of 2,541 inmates in 1990 is accurate, the population would still be thirty percent over design capacity after construction was finished (DCS 1986a).

The Price of Prison. The price of prison is high. Construction of the Omaha Correctional Center cost over $18 million. Of this amount, $500,000 was paid to acquire a site for the facility in Omaha and $1.5 million was expended to prepare the site for construction (Falconer 1988). The remaining $16 million was used for actual construction costs.

To cover the costs of future prison expansion for 1987-90, DCS made a special request to the Nebraska Legislature in December 1986 for nearly $13 million in additional funding to accommodate estimated prison overpopulation through 1990 (DCS 1986a). Included in this DCS proposal were funds for the construction and operation of three new penal facilities. Initial construction was estimated to cost $562,700 for the Hastings Regional Center, $1,401,800 for the new unit at the Omaha Correctional Center, and $1,973,790 for the new unit at the Lincoln Correctional Center (DCS 1986a). Extra funds were also included to meet the costs resulting from underestimated and unbudgeted increases in the prison population each year.

Building prisons is only part of the cost. Additional costs are paid every year through the operating budget — what it costs to run the prisons. Estimated future annual operating costs are $1,088,781 for the Hastings Regional Center, $755,429 for the new addition at the Omaha Correctional Center, and $1,120,080 for the addition at the Lincoln Correctional Center (DCS 1986a).

Current annual operating costs, including indirect costs such as DCS administrative expenses and per capita costs for Nebraska's prisons, are shown in table 2. A useful way of looking at this expenditure data is to think of the costs of an individual sentence. As table 2 indicates, one year of actual time served at the Nebraska State Penitentiary represents a commitment of $17,045 of the taxpayers' money. In effect, a sentence of one year or ten years says that offender and that crime are worth resources totaling $17,045 or $170,450.

Table 2 - Annual Operating and Per Capita Costs for Nebraska's Prisons, FY 1986-87*

Facility	Annual Operating Cost	Per Capita Cost
Nebraska State Penitentiary	$11,587,349	$17,045
Lincoln Correctional Center and Evaluation Unit	$9,891,289	$14,803
Omaha Correctional Center	$4,088,710	$13,983
Nebraska Center For Women	$1,847,231	$21,331

*Table includes neither the costs of the community corrections centers in Omaha and Lincoln nor the costs of the Hastings Regional Center.

Source: Department of Correctional Services.

Besides operating costs, there are also incalculable — but real — opportunity costs associated with prison expansion. These should be considered as lost opportunity costs, because funds devoted to prisons are unavailable for other public purposes, such as education, health, and economic development.

Return on Investment. What do Nebraskans receive for these large outlays of money? Possible benefits of incarceration include:

- Incapacitation, or the prevention of crimes because the offender is in prison;
- Specific deterrence, or the prevention of crimes because punishment dissuades the punished from repeating crimes;
- Reduced recidivism because inmates are rehabilitated; and
- General deterrence, or prevention of crimes by would-be offenders who are deterred because offenders are punished (Funke 1985).

The few studies that have priced the benefits of incapacitation and reduced recidivism indicate that prisons do not provide enough of these kinds of benefits to justify them by cost alone (Funke 1985). One study, for example, examined the incapacitation benefits of a typical federal correctional institution and concluded that the monetary value of avoided crimes was less than the costs of incarceration (McGuire 1978).

The few studies that have priced the benefits of incapacitation and reduced recidivism indicate that prisons do not provide enough of these kinds of benefits to justify them by cost alone.

Despite the many public discussions and political debates that have concluded with certainty that prisons deter crime and therefore sentences ought to be longer, there is little evidence to support the notion that deterrence is a major benefit of prison. A review of more than twenty analyses directed at testing whether or not the use of noncapital sanctions deters crime cautioned that the evidence "is still not sufficient for providing a rigorous confirmation of the existence of a deterrent effect." (Nagin 1978)

Regarding the incapacitation effects of prison, a distinction must be drawn between schemes involving collective incapacitation and those using

selective incapacitation. Under collective incapacitation, standardized sentences would be developed on the basis of data on rates of recidivism associated with various crimes. Under selective incapacitation, individualized sentences would be given based on predictions about the likelihood that specific offenders would commit serious offenses at a high rate if not locked up. A leading expert on the usefulness of incapacitating criminals reviewed the research findings on incapacitation and concluded that:

> Collective incapacitation policies have only modest impacts on crime but can cause enormous increases in prison populations. Selective incapacitation strategies offer the possibility of achieving greater reductions in crime at considerably smaller costs in prison resources, but their success depends critically on the ability to identify high- rate offenders early in their careers or prospectively. As yet, this has not been accomplished (Cohen 1983,5).

Regarding rehabilitation as a benefit of prison, study after study has shown that rehabilitative programs have promised much but delivered very little in terms of transforming criminals into law-abiding citizens (Bailey 1966; Morris 1974; Lerman 1975; Lipton and others 1975; Riedel and Thornberry 1978). Even if rehabilitation were a proven benefit of prison, this alone would be a weak justification for incarceration, because the prime objective of prisons in the United States is control, not changing the lawbreaker.

More powerful rationales for prisons stem from noneconomic premises that have little to do with either money or recidivism. It is almost certain that there are crimes that can not be priced, such as murder, rape and robbery; and prison can play a useful role in assuring that persons who commit these types of crimes are punished. Also, most people would agree that some offenders are so dangerous they must be locked up, and prison can play an important role in incapacitating these offenders. Additionally, there are persistent criminals who do not respond to probation, parole, or other forms of community corrections, and prison can provide the restrictive controls that these offenders require (Conrad 1985).

If imprisonment in Nebraska were limited to violent, dangerous, and repeat offenders, the state would not have a prison overcrowding problem. But, as the present study will show, there are many nonviolent offenders who are serving time for property crimes in Nebraska's prisons. Some of these offenders could be out of prison under supervision, working and paying taxes, rather than occupying expensive prison cells.

Alternatives to Prison. Reversing the trend toward ever more prisons and prisoners will require a coordinated effort by Nebraska's criminal justice agencies. DCS and the Nebraska Parole Board have begun to chart a course that may keep the state from making a headlong rush into a costly future.

They are jointly sponsoring two innovative programs: extended leave and house parole.[12]

Extended Leave. Extended leave allows selected inmates at community corrections centers who have been set for a parole release date to live at home, with their families, for a limited time prior to their scheduled parole releases or discharges from their sentences. Only those inmates who have successfully participated in a work or educational release program, who have a stable residence in the community, and who do not pose a danger to the community, are eligible to apply for extended leave (DCS 1986b).

While inmates are in the community on extended leave, they are under the intensive supervision of Adult Parole Administration field officers (DCS 1986b). Inmates must remain at their homes at all times except while at work, school, or other approved activities. Each inmate has one face-to-face contact per week, either at home or on the job, with a parole officer; two employment contacts per week with a parole officer; and two telephone contacts per week at home with a Community Corrections Center staff person (DCS 1986b).

If imprisonment in Nebraska were limited to violent, dangerous, and repeat offenders, the state would not have a prison overcrowding problem. But there are many nonviolent offenders who are serving time for property crimes in Nebraska's prisons.

Supervising an offender on extended leave costs about the same as supervising a parolee (about $2,133 in 1986-87), and it is cheaper than housing an inmate at the Community Corrections Centers ($7,871 in 1985-86) (Cornwell 1988). Another benefit is that inmates on extended leave have many resources available (for example, mental health and substance abuse counseling, family and marital counseling, educational and vocational training, and so forth) that may not be available in prison due to overcrowding (DCS 1986b).

One hundred two inmates participated in the extended leave program from December 1986 through January 1988. As of February 1, 1988, forty-three of these prisoners had been placed on parole, two had been discharged, three had been removed for technical violations, and the rest (fifty-four) were still on extended leave (Cornwell 1988).

House Parole. House parole is Nebraska's other early release program. House parole is a method of releasing into the community all prisoners who are near the end of their sentences and who have been paroled but do not have employment. The main purpose of house parole is to provide offenders with direct access to employment opportunities.

House parole was begun in January 1986 to remedy a "catch-22" problem (Cornwell 1988): The Nebraska Parole Board refused to parole inmates into the community unless they had jobs, yet many inmates found it difficult to line up jobs while still in prison. As a result, there was a logjam in the parole process, with many parole-eligible inmates remaining in prison because their paroles were pending or they were awaiting employment.

Many inmates with approved residences are placed on house parole in order to find jobs. Parolees on house parole must seek a job from 8:00 a.m. until 5:00 p.m., Monday through Friday. They must be at their approved residences from 5:00 p.m. to 8:00 a.m., Monday through Friday, and all weekend (Nebraska Adult Parole Administration 1986). House parolees who find jobs are placed on regular parole status, while those who fail to find jobs after 30 days may be returned to prison.

Parolees on house parole are under the supervision of parole officers. Each parolee must submit a daily list of the places that will be contacted for employment. The parole officer uses the list to make random checks with prospective employers to ensure that the parolees are where they are supposed to be (Nebraska Adult Parole Administration 1986).

The success of house parole could be measured in terms of how many offenders find jobs, how many offenders commit crimes while in the community, and how much cheaper house parole is than prison. So far, no inmates placed on house parole have committed serious crimes while in the community (Cornwell 1988). It is impossible, however, to make any other statements about the success or failure of house parole because neither the Parole Board nor the Adult Parole Administration keeps statistics on what happens to inmates assigned to the program.

Nebraska's Short-Term Prison Population

Building upon the idea that prison overcrowding can be reduced by offering safe and economical alternatives to incarceration, this section gives a description of the short-term prison population in Nebraska. It addresses the question of whether there is a sufficient number of nonviolent offenders in Nebraska's prisons to justify creating ISP programs in Nebraska. Case files of the Nebraska Parole Board were used to obtain data on the short-term prison population.

Identifying the Most Likely Candidates for ISP

The focus is on those prisoners who have minimum terms of two years or less, because it is assumed that those with shorter sentences have committed less serious crimes and are better risks for release into the community on ISP. There were 688 men and 86 women sentenced to two years or less in Nebraska's prisons from January 1, 1987 through January 1, 1988 (Nebraska Parole Board 1987).

Certain categories of offenders were excluded from consideration as candidates for ISP because of factors in their criminal histories. Offenders admitted to prison in 1987 because of parole violations were excluded because it was doubtful that these offenders would be placed in community alternatives. Offenders who had served prior prison sentences, who had one or more prior felony convictions, or whose current offense was a violent crime, such as murder, sexual assault, or robbery, were excluded for the same reason. Using these exclusionary criteria, there was a remainder of 281 nonviolent offenders with zero prior felony convictions, hereafter referred to as NVOZs.

NVOZs do not have to go to prison in Nebraska. All NVOZs are eligible for probation. In theory, it should be easy for many of them to exit the route to prison. Nevertheless, Nebraska's judges sent 281 NVOZs to prison in 1987.

Demographic and Social Characteristics of NVOZs

Table 3 gives social and demographic information on NVOZs sentenced to minimum prison terms of two years or less. Three-fourths were between 17 and 30 years old. About eighty percent of the NVOZs were unmarried, yet over forty percent had children. Approximately three-fourths of the offenders had completed some high school. At the time of the current offense, about one-third of the NVOZs had jobs.

Over seventy percent of the NVOZs had past involvement in drug use and over eighty percent had used alcohol. Data on past successes and failures

NVOZs do not have to go to prison in Nebraska. All NVOZs are eligible for probation and, in theory, it should be easy for many of them to exit the route to prison. Nevertheless, Nebraska's judges sent 281 NVOZs to prison in 1987.

Table 3 - Social and Demographic Characteristics of Nebraska's NVOZs, 1987

Characteristic	Number*	Percent*
Sex		
Male	235	83.6
Female	46	16.4
Race		
White	219	77.9
Minority	62	22.1
Age		
17-21	90	32.0
22-30	129	45.9
31-40	40	14.3
41+	22	7.8
Marital status		
Married	53	18.9
Single	173	61.6
Divorced/separated or widowed	54	19.2
Have children		
Yes	122	43.4
No	159	56.6
Education		
Grade school	16	5.7
Some high school	108	38.4
High school or GED	101	35.9
Some college	55	19.6
Employed at time of arrest		
Yes	98	34.9
No	182	64.8
Known drug use		
Yes	207	73.7
No	74	26.3
Known alcohol use		
Yes	242	86.1
No	39	13.9
Known mental health history		
Yes	48	17.0
No	232	82.6

*Total numbers and percentages may vary among subcategories due to incomplete files.

Source: Nebraska Parole Board.

in drug and alcohol programs and on the drug dependence of individual offenders were not collected. Therefore, the meaning and policy implications of data on drug and alcohol use are unclear.

Current Offenses of NVOZs

Table 4 presents the offenses for which NVOZs were sentenced to prison. Over half of the offenses committed by NVOZs were within the general categories of property and burglary, and over one-fourth of the offenses were in the general category of drugs. Burglary, theft, second-degree forgery, and possession of a controlled substance were the crimes with the highest percentages of NVOZs.

Table 4 - Types and Descriptions of Current Offenses of Nebraska's NVOZs, 1987

	Number	Percent
Property		
Theft	49	17.4
Second degree forgery	28	10.0
Receiving stolen property	10	3.6
Petty larceny	4	1.4
First degree forgery	3	1.1
Bad check $300-$999	3	1.1
Criminal trespassing	3	1.1
Second degree arson	2	.7
Possession of a forged instrument $300+	2	.7
Bad check $1,000+	2	.7
Unlawful sale of mortgaged property	2	.7
Shoplifting third offense	2	.7
Third degree arson	1	.4
Bad check $75-$299	1	.4
Writing a check on nonexistent account	1	.4
Drugs		
Possession of a controlled substance	24	8.5
Delivery of a dangerous substance	20	7.1
Dealing drugs	17	6.0
Manufacturing a controlled substance	4	1.4
Possession of over one pound of marijuana	3	1.1
Burglary	62	22.1

- continued

Table 4 continued - Types and Descriptions of Current Offenses of Nebraska's NVOZs, 1987

	Number	Percent
Other		
Driving under a suspended license	9	3.2
Escape	6	2.1
Accessory to a felony	3	1.1
Aiding in a felony	3	1.1
Resisting arrest	2	.7
Conspiracy	2	.7
Criminal mischief	2	.7
Criminal nonsupport	1	.4
Obstructing police	1	.4
Operating a motor vehicle to avoid arrest	1	.4
False reporting	1	.4
Failure to appear	1	.4
Possession of a concealed weapon	1	.4
Driving while intoxicated third offense	1	.4
Abandoning a dead body	1	.4
Unauthorized operation of a propelled vehicle	1	.4
Possessing a short shotgun	1	.4
Criminal attempt	1	.4
Total	281	100.0

Source: Nebraska Parole Board.

Legal Processing and Sentencing Information on NVOZs

Legal processing and sentencing information on Nebraska's NVOZs is shown in table 5. More than three-fourths of the NVOZs were committed to prison for only one count. Nearly seventy percent had minimum sentences of less than twelve months, while over sixty percent had maximum terms of twenty-four months or less. Also, almost twenty percent of the NVOZs were discharged from prison in the same year that they were sentenced to go there. (It is easy to understand why Nebraska penal authorities refer to NVOZs as "quick dippers.")

Table 5 also indicates that over forty percent of the NVOZs were sentenced from Douglas and Lancaster counties. These figures suggest that there are sufficient numbers of NVOZs in Nebraska's metropolitan areas to justify the creation of ISP programs in Omaha and Lincoln.

Table 5 - Legal Processing and Sentencing Information of Nebraska's NVOZs, 1987

	Number	Percent
Number of counts on current conviction		
1	219	77.9
2	54	19.2
3	6	2.1
4	1	.4
7	1	.4
Minimum sentence		
12 months or under	193	68.3
13-18 months	34	12.1
19-24 months	54	19.2
Maximum sentence		
24 months and under	172	61.2
25-48 months	84	29.9
49-60 months	24	8.5
61-120 months	1	.4
Discharged in 1987		
Yes	54	19.2
No	227	80.8
Number of NVOZs sentenced to prison from Douglas, Lancaster, and all other counties		
Douglas	93	33.1
Lancaster	32	11.4
All other counties	156	55.5

Source: Nebraska Parole Board.

Criminal Histories of NVOZs

Table 6 gives information on the criminal histories of NVOZs. Overall, it appears that NVOZs have limited criminal histories. The following facts stand out:

1. Nearly one-half of the NVOZs had never been previously arrested for a felony and over ninety percent had three or fewer felony arrests.

2. More than seventy percent had no prior arrests for violent crimes.

3. Although sixty percent of the NVOZs had served time in jail, most of these jail terms were for traffic violations.

Table 6 - Criminal Histories of Nebraska's NVOZs, 1987

	Number*	Percent*
Number of prior felony arrests		
0	138	49.1
1	56	19.9
2	40	14.2
3	24	8.5
4	7	2.5
5	4	1.4
6	2	.7
7	4	1.4
8	3	1.1
13	1	.4
15	1	.4
32	1	.4
Number of prior (felony and misdemeanor) arrests for violent crimes		
0	199	70.8
1	41	14.6
2	25	8.9
3	9	3.2
4	3	1.1
5	3	1.1
8	1	.4
Number of prior adult jail terms for crimes and traffic infractions§		
0	111	39.5
1	57	20.3
2	38	13.5
3	23	8.2
4	9	3.2
5	8	2.8
6	8	2.8
7	6	2.1
8+	21	8.3
Number of prior adult probation orders		
0	149	53.0
1	87	31.0
2	29	10.3
3	12	4.3
5	1	.4
6	2	.7
7+	1	.4

- continued

Table 6 continued - Criminal Histories of Nebraska's NVOZs, 1987

	Number*	Percent*
Prior community sanctions (for example, fines and restitution) for crimes and traffic infractions		
Yes	219	77.9
No	50	17.8
Probation at time of offense		
Yes	26	9.3
No	255	90.7
Charges pending at time of arrest		
Yes	47	16.7
No	230	81.9
Warrants or detainers at time of arrest		
Yes	28	10.0
No	229	81.5
Number of prior juvenile commitments		
0	221	78.6
1	34	12.1
2	22	7.8
3	2	.7
4	1	.4

*Total numbers and percentages may vary due to incomplete files.

§ Some NVOZs had multiple jail terms for traffic violations such as failing to have a driver's license, improperly displaying license plates, lacking proof of automobile ownership, running a stop sign, failing to yield, having no headlight, driving on the left side of the road, and driving while intoxicated.

Source: Nebraska Parole Board.

4. Over one-half of the NVOZs had never even been on adult probation, and ninety percent of them were not on probation at the time of arrest.

5. Approximately eighty percent of the offenders had no prior commitments to juvenile correctional institutions.

6. Over eighty percent of the offenders had no pending charges, warrants, or detainers at the time of arrest.

7. Most of the NVOZs (77.9 percent) had prior community sanctions against them, but many of the fines that were included in this category were for traffic violations.

Because of the high cost of imprisonment and its minimal benefits for NVOZs, Nebraska taxpayers may be the ones who suffer when offenders are sentenced to a "quick dip" in prison.

From the information on the criminal histories of NVOZs, it is apparent that many of them could be candidates for ISP. Only a few of the NVOZs (such as the offenders with numerous prior felony arrests in table 6) would not qualify for ISP. Even after excluding the exceptional cases, there would still be a large pool of NVOZs eligible for alternatives to prison.

Benefits and Costs of Short Prison Terms for NVOZs

Most of the NVOZs sentenced to prison in Nebraska are sentenced for retribution or punishment, protection, and deterrence. However, prison sentences for NVOZs may foster criminality rather than deter it, as prisons have been described as "training grounds" for neophyte criminals. Also, community protection is difficult to achieve because it is limited to the brief period that NVOZs are incarcerated.

Punishment is achieved by imprisoning NVOZs, but at what cost? From a fiscal standpoint, imprisoning NVOZs is undesirable. Maintaining the 281 NVOZs[13] sentenced to prison in 1987 costs approximately $4 million per year.

Because of the high cost of imprisonment and its minimal benefits for NVOZs, Nebraska taxpayers may be the ones who suffer when offenders are sentenced to a "quick dip" in prison. The next section examines a reasonably priced alternative to prison for NVOZs that both punishes criminals and protects the community.

ISP: A Viable Alternative for NVOZs in Nebraska

ISPs have been called "prisons without walls" (New Jersey Administrative Office of the Courts 1988). They feature rigorous supervision of offenders, surveillance, curfews, drug testing, mandatory employment and community service, and strict rule enforcement. ISPs may include additional features

such as restitution, fines, house arrest,[14] and electronic monitoring (Burkhardt 1986).

Nebraska policymakers considering using ISP to alleviate prison overcrowding need to consider the following basic questions:

1. How are program participants selected?
2. How are program participants supervised?
3. How well does ISP protect the community?
4. How cost-effective is ISP?
5. How effective is ISP in reducing the prison population?
6. What are the additional benefits of ISP?
7. How politically acceptable is ISP?
8. How practical are supervision fees as a way of funding ISP?

Selection Procedures

The decision to use ISP can be made at different stages in the processing of an offender and by different officials in the justice system. The most noteworthy decision points are at sentencing, at probation and parole revocation proceedings, and at sentence review or resentencing hearings after a prison sentence has been given.

Criteria for program eligibility vary from state to state. All ISP programs try to assess the risks presented by each offender. Sometimes only first-time offenders are eligible; usually violent offenders are disqualified. Probation officers and judges also consider other criteria such as whether the offender has untreatable drug or alcohol problems, an unstable family situation, and/or a poor employment record.

The selection rules in Georgia's Intensive Probation Supervision (IPS) program stipulate that participants be "serious but nonviolent offenders" who, without the intensive supervision option, would have gone to prison in the jurisdiction under which they were sentenced (Erwin 1986a,18). This leads to rejecting high-risk individuals and probation revocation cases.

Georgia's IPS uses two methods for selecting offenders. In one process, offenders who have already been sent to prison are chosen. Inmates are screened for potential assignment to IPS, and recommendations are made to

the sentencing judges to resentence offenders to IPS. In the other method, judges sentence offenders directly to IPS (Erwin 1986a).

The latter route raises questions about whether IPS results in true diversion. Analysis of the offender groups assigned to regular probation, IPS, and prison in Georgia shows that sixty percent of the IPS clients had profiles that were more similar to prison inmates than to probationers (U.S. Bureau of Justice Assistance 1987). This implies that forty percent of the IPS clients were not diverted from prison and that IPS may have been used as an add-on punishment instead of an alternative to prison for some offenders. It also suggests that claims about money saved (IPS is less expensive than prison) may need to be moderated in Georgia's case.

New Jersey's Intensive Supervision Program (ISP) has an inventive way of guaranteeing that its clients are real divertees. In New Jersey, judges cannot sentence an offender directly to ISP. Instead, offenders may apply to the program after they reach prison (Pearson and Bibel 1986). ISP officers screen potential clients. All persons sentenced to a state prison term are eligible unless they are convicted of homicide, robbery, or sex crimes. Offenders also may be excluded for having too many prior offenses or a history of violence. Most of those selected for ISP are burglars, minor thieves, small-time drug sellers, and persons convicted of fraud who have served about four months of their sentence before being released into ISP (Pearson and Bibel 1986).

New Jersey's Intensive Supervision Program (ISP) has an inventive way of guaranteeing that its clients are real divertees . . . judges cannot sentence an offender directly to ISP. Instead, offenders may apply to the program after they reach prison.

After an ISP officer investigates an applicant, an ISP screening board, which is made up of citizen members, reviews the applicant's suitability for ISP and then interviews the applicant to gauge whether there is motivation to succeed in the program. Next, the board either rejects the case or recommends it to the ISP resentencing panel. A six-judge resentencing panel then conducts a hearing to decide whether the applicant will remain in prison or be released into ISP. This panel also reviews the progress of all program participants every ninety days, hears allegations of program violations, and decides whether ISP violators will be returned to prison (New Jersey Administrative Office of the Courts 1988).

While the selection process in New Jersey was set up to ensure diversion of ISP offenders, one side effect was a slow admissions rate to the program. It required almost a year to reach full caseload (Baird 1984, Clear 1986).

Stringency of Supervision

The degree of supervision provided depends on the offender clientele. Periodic checks made by probation officers, in person and by phone, are the most common kind of supervision in ISPs. Some jurisdictions use electronic monitoring.

The Georgia program requires six to twelve months of supervision and has three phases. The first two phases each last three months. In Phase I, there are five contacts with a probation officer per week. This declines to two contacts per week by Phase III. There is a mandatory curfew of 10:00 p.m. to 6:00 a.m. during all these phases.

Each offender must perform 132 hours of community service and either be employed or perform extra community service until a job can be found. Participation in routine, unannounced alcohol and drug testing is also required. In addition, each probationer must pay a $10-50 monthly surveillance fee (Erwin 1987).

A team method of supervision is used, with one probation officer and one surveillance officer assigned to 25 probationers, or one probation officer and two surveillance officers assigned to 40 probationers. Each offender must follow behavioral standards, and submit to surveillance adequate to minimize risk to the community and allow for rehabilitative counseling.

In New Jersey, each offender selected for ISP receives twenty face-to-face contacts per month during the first fourteen months of an eighteen-month program. Some offenders are checked frequently for curfew violations by electronic monitoring, and over eighty percent of the participants are screened periodically for drugs (Pearson 1985).

New Jersey requires each offender to find employment within thirty days of release from the program and to perform sixteen hours of community service per month. Some offenders pay fines or make restitution, and some receive counseling and treatment for behavioral problems such as drug abuse (Pearson 1985).

Caseloads in the New Jersey program are about twenty participants per officer. Officers spend eighty percent of their time directing field supervision. Most of this time is spent seeing offenders at their homes, jobs, treatment programs, and community service sites. Officers work flexible hours because evenings and weekends are prime supervision times. They work out of their residences and go to regional offices only for paperwork and staff meetings (New Jersey Administrative Office of the Courts 1988).

Community Protection

Georgia's IPS Program. How well does intensive supervision control offenders? Georgia reports that of the 2,322 people in its program between 1982 and 1985, 370 (sixteen percent) absconded or had their probation revoked (Erwin and Bennett 1987). The remaining 1,952 were diverted successfully from prison. Only 0.8 percent of IPS probationers were convicted of any violent personal crimes while under IPS. Most of the IPS clients' new crimes were violations of drug and alcohol laws, and none resulted in serious bodily injury to a victim (Erwin and Bennett 1987).

A comparison of results for 200 IPS probationers, 200 regular probationers, and 97 prison releases after an eighteen-month period, showed that IPS probationers had lower reconviction rates (18.5 percent) than either regular probationers (24.0 percent) or prison releases (42.3 percent) (Erwin and Bennett 1987). In addition, the IPS group was convicted of fewer serious new crimes against persons than either of the other two groups. Although more IPS probationers violated the conditions of probation than did regular probationers (7 percent compared to 4.5 percent), and more IPS probationers were re-arrested than regular probationers (40.0 percent compared to 35.5 percent), this might be expected because ISP probationers were so closely supervised that any illegal actions would be extremely difficult to hide. It was not expected that only 1 of the sample of 200 IPS probationers would abscond, compared to 4 of the 200 regular probationers (Erwin and Bennett 1987).

Drug offenders were the most successful in the IPS program. They had a ninety percent success rate during the eighteen-month follow-up study period. Random urinalysis, monitoring, frequent contact, and curfews during the evening and on weekends may be especially effective in controlling drug offenders (Erwin and Bennett 1987).

New Jersey's ISP Program. New Jersey's program reports that of 1,147 offenders assigned to ISP from 1983 to August 1987, 400 (thirty-five percent) are still in ISP, 394 (thirty-four percent) have successfully completed the program, 342 (thirty percent) have been returned to prison, and 11 (one percent) have either died or had their prison sentences overturned. Among the 342 who were returned to prison, 249 were returned for violating program rules and 93 for committing new crimes. The high percentage of participants returning to prison is the result of frequent drug monitoring and curfew checks (New Jersey Administrative Office of the Courts 1988).

Recidivism among New Jersey's ISP graduates has been low. Since 1984, 327 participants have successfully completed ISP. According to New Jersey State Police criminal history records, only fourteen (four percent) of ISP graduates since 1984 have been convicted of new offenses. Nine of the

fourteen graduates were convicted of disorderly persons offenses such as shoplifting. None of the offenses involved violence (New Jersey Administrative Office of the Courts 1988).

The findings from New Jersey are ambiguous. On one hand, ISP offenders and prison offenders were significantly different in terms of prior felony convictions, with the ISP group having an average of 2.2 prior felony convictions compared with an average of 5.1 for inmates in New Jersey's prisons. Also, ISP participants were more likely to have jobs at the time of the current offense and were better educated than prison inmates (Pearson and Bibel 1986). On the other hand, ISP participants during the study period were real felons — two-thirds of them had prior felony convictions (Pearson and Bibel 1986).

In Georgia, IPS cost nearly $7,000 less than prison, per offender, each year . . . . In New Jersey in 1987, the annual cost per ISP participant was $5,208, compared to $22,000 for prison.

The main policy implication of the findings on community protection from both Georgia and New Jersey is this: If certain kinds of offenders are placed under intensive supervision, there is a limited risk to the community.

Cost-Effectiveness of ISP

One of the appeals of ISP is its relatively low price compared to prison. Policymakers must decide whether the money that could be saved through intensive probation justifies its risks and benefits.

In Georgia, IPS costs nearly $7,000 less than prison, per offender, each year (excluding what might otherwise have been spent on building new prisons). If all 2,322 offenders placed in IPS from 1982-85 were diverted from prison, more than $13 million was saved (Erwin and Bennett 1987). One reason for such a large savings is that Georgia's IPS probationers pay supervision fees.

In New Jersey in 1987, the annual cost per ISP participant was $5,208, compared to $22,000 for prison. Program costs were further offset because ISP participants paid federal and state taxes, fines, child support, restitution, and supervision fees, and contributed free community service. When these monetary benefits of ISP are considered, the net cost of ISP is less than

$2,000 per year for each participant (New Jersey Administrative Office of the Courts 1988).

On the national level, the Rand Corporation (Petersilia 1986) used information from its nationwide survey of innovations in probation to calculate estimates of annual costs per offender of intensive probation and other alternative sentences. Table 7 indicates that intensive probation is much cheaper than incarceration in jail or prison. Home detention costs nearly the same as intensive probation, depending on whether electronic monitoring is used as part of home detention.

Table 7 - Comparisons of the Costs of Alternative Sentences

Type of Program	Annual Cost Per Offender
Routine probation	$300-$2,000
Intensive probation	$2,000-$7,000
Home detention*	$2,000-$8,500
Local jail	$8,000-$12,000
State prison	$9,000-$20,000

*Costs of the home detention program depend on whether electronic monitoring is used.

Source: Rand Corporation.

Prison Population Reduction

The cost savings promised by intensive probation depend on whether it actually diverts offenders from prison. Georgia's success in reducing its prison population through IPS predicts what could happen if Nebraska were to adopt Georgia's model.

Before establishing IPS in 1982, Georgia had the highest incarceration rate in the United States. Georgia's elected judges gave harsh sentences and sent to prison many felons who would not have gone to prison in other states (Otten 1987). So Georgia's offenders may be unusually low-risk by national standards. As the analysis of Nebraska's prison population has shown, Nebraska also has many low-risk offenders who could be eligible for intensive probation.

Evidence from Georgia, which implemented IPS in 1982, indicates that following the introduction of IPS (from 1982 through 1985) there was a ten percent reduction in felons sentenced to prison. During the same period, the percentage of offenders placed on probation increased ten percent — from sixty-three percent in 1982 to seventy-three percent in 1985 (Erwin and Bennett 1987).

Additional Benefits

In Georgia, IPS probationers produced thousands of hours of public service, such as working at maintenance and other jobs in hospitals, parks, day care centers, and charity programs. Even if these hours are valued at minimum wage, the contribution to society is large (Erwin and Bennett 1987).

Other benefits can be achieved through intensive probation. For example, offenders who are placed on intensive probation instead of being sent to prison do not lose their jobs, and their families are not forced to receive welfare support. Also, offenders on intensive probation can pay taxes and make restitution while avoiding the criminal influences of prison.

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Political Acceptability

The results of a recent survey of Nebraska's correctional policymakers show the political feasibility of ISP in Nebraska (Hoffman and Webb 1987). The survey gauged how receptive the persons who are instrumental in making correctional policy in Nebraska are to various solutions to the overcrowding problem.

Personal interviews were conducted with selected legislators, correctional administrators, judges, prosecutors, police administrators, and other criminal justice officials who form correctional policy in Nebraska. These policymakers were asked to indicate their approval or disapproval of different solutions to the prison overcrowding problem.

A major finding of this survey was that there is strong support among Nebraska policymakers for intensive probation. Eighteen of the 25 policymakers interviewed said they approve of intensive probation for first-time, nonviolent offenders. Two of the policymakers were neutral to intensive probation, four were opposed, and one was undecided.

Policymakers also were asked whether it would be feasible to implement intensive probation in Nebraska. All of them said it would be politically as well as economically feasible, as long as taxes were not increased.

Supervision Fees as a Funding Source

Supervision fees are a potential source of funding ISP in Nebraska. The National Institute of Corrections (NIC) reports that twenty-three states are charging supervision fees to probationers and parolees (NIC 1983). Probation fees partially support Georgia's highly successful IPS (Erwin and Bennett 1987).

Three types of services for which fees are being charged in other states are: (1) room and board in transitional residential programs (for example, restitution centers and halfway houses); (2) fees for specific services (for example, substance abuse counseling); and (3) fees for correctional supervision (NIC 1983).

The usual method of collecting supervision fees is to charge a uniform monthly rate, usually $10 or $15 (NIC 1983). Other methods include a fee for a specified period of supervision (for example, $100 for six months); monthly rates set within an allowable range (for example, $10-$50); discretionary rates based on an offender's ability to pay and the costs of probation services; and a combined flat rate and monthly fee, which requires the offender to make an initial probation user payment and then pay a monthly fee (NIC 1983).

To avoid discrimination against poor offenders, supervision fee programs allow a waiver or reduction of payments in some situations. States waive or reduce supervision fees for offenders who are physically or mentally incapable of working, whose income falls below the poverty level, and who have a large number of dependents to provide for (NIC 1983).

Proponents of supervision fees say that the programs provide substantial revenue. In the Georgia IPS program, for example, fee collections through the first four years of IPS exceeded total IPS costs (Erwin 1986). This does not mean that IPS probationers alone have supported the program. IPS was initially a pilot program in thirteen of Georgia's forty-five judicial districts and was supported partially by fees collected statewide from regular probationers (Erwin 1986).

Two important questions associated with fec programs are: Who should receive the revenue? and, How should it be spent? Probation and parole agencies argue that they are entitled to the money because they use their resources to collect it. In Georgia, for example, funds are used to support IPS and other innovations in probation. However, in nine of the 23 states that collect fees, revenues are returned to the state's general fund, where the money does not have to be spent on corrections (NIC 1983).

Opponents of supervision claim that fee programs do not generate much revenue, place unfair burdens on offenders who already have enough financial responsibilities, encourage inequities in the justice system, and risk legal

challenges (NIC 1983). NIC data on fee programs in 23 states, however, establish the following facts about these programs:

- Substantial amounts of money can be raised from supervision fee programs.
- Moderate fees can be collected from a majority of the probation/parole populations.
- Guidelines can be established to assure equitable enforcement of supervision fee payments.
- No significant legal challenges have succeeded in curtailing the practice of collecting supervision fees (NIC 1983).

National opinion polls indicate that the public wants criminals punished, but that it is unwilling to pay for more prisons. Polls also indicate that the public is supportive of nonprison forms of punishment.

The policy implication for Nebraska regarding NIC's findings is that supervision fees would be a practical way of generating revenue to support intensive probation. Furthermore, using supervision fees to defray program costs might make it easier to market ISP to Nebraskans. Money for initiating IPS, however, would have to come from another source.

Summary and Suggested Policy Actions

Editor's note: The Nebraska Probation Administration began planning a pilot intensive probation program in the summer of 1988 (Keller 1988). No details of the program were available at the time of this writing.

Prison overcrowding will remain a serious problem in Nebraska in the near future. Increases in prison admissions and in lengths of stay are the main factors adding to Nebraska's prison population. Nebraska's answer to the problem has been to expand prison capacity and to implement programs to reduce length of stay.

This strategy of increasing prison capacity is premised on the perception that the public wants harsh forms of punishment. Indeed, national opinion polls indicate that the public wants criminals punished, but that it is unwilling to pay for more prisons. Polls also indicate that the public is supportive of nonprison forms of punishment.

Nebraska policymakers should give serious consideration to policy options featuring nonprison forms of punishment. Data from the Nebraska Parole Board's files show that there currently are many prison inmates who are not dangerous enough to require imprisonment. Many of these nonviolent offenders with marginal criminal histories could be diverted into intensive probation programs that are more cost-effective than incarceration.

Nebraska should develop pilot intensive supervision programs in Omaha and Lincoln with the goal of reducing prison admissions by 50 to 100 commitments per year. If the goal of the pilot programs is to provide a cost-effective alternative to prison, safeguards should be established to ensure that diversion takes place. The selection of inappropriate offenders for ISP (for example, those who do not require additional control and who would not ordinarily be sent to prison) wastes program space and causes an increase in correctional costs (Mathias 1986).

Nebraska should develop pilot intensive supervision programs in Omaha and Lincoln with the goal of reducing prison admissions by 50 to 100 commitments per year.

Carefully designed procedures for monitoring the implementation of selection methods are the best precautionary measures. Because of the tendency of some Nebraska judges to sentence NVOZs to prison, it is unlikely that a large enough part of the target population could be diverted through a selection method like Georgia's, which makes intensive probation a judicial sentencing option. A more effective method would be one like New Jersey's, which considers only offenders who have already received a prison sentence. One drawback, however, is that this method is slow in admitting offenders into programs.

Successful implementation of ISP pilot programs in Nebraska will require that the public's demand for punishment be satisfied. Policymakers should tailor pilot programs to serve as punishment as well as diversion. New Jersey runs the most punitive program, selecting offenders only after they have been imprisoned. New Jersey's approach combines elements of probation and incarceration.

Nebraska policymakers may want to consider requiring offenders to spend a brief period, such as 30 days, in prison before selection for ISP. Such an approach has the advantages of providing more protection to the community and of possibly shocking offenders into a realization that they must end their criminal involvement. Disadvantages are that adding a shock

feature to ISP increases the costs of the program (because a short time in prison costs more than a short time in IPS) and subjects ISP clients to the potentially negative influences of prison.

The punitive benefits of intensive probation can also be increased by including multiple requirements. Programs in New Jersey and Georgia, for example, require offenders to perform community service without pay, to pay fines and supervision fees, to submit to frequent drug testing, to engage in full-time work, to abide by curfews, to participate in counseling, and to make restitution to victims.

ISP is a proven, cost-effective approach for alleviating prison overcrowding.

The issue of punitiveness of the pilot programs has public relations dimensions. Developers of ISP programs in Nebraska should be concerned with gaining public support for the placement of ISP offenders in the community. One strategy that has worked in other states is to form an ISP advisory group including citizens, the media, and representatives of criminal justice agencies (Bureau of Justice Assistance 1987).

Beyond these issues in program development and implementation, Nebraska policymakers need to realize that ISP is a realistic policy choice. ISP is a proven, cost-effective approach for alleviating prison overcrowding; it has the potential for meeting the public's demand for punishment; and equally important, it is economically and politically feasible.

Endnotes

1. This study is modeled after the prison diversion studies conducted in Michigan (Bynum, Morash, Davidson, and Basta 1987) and New York (Mathias 1986).

2. Drug offenses include the crimes of administering narcotics to addicts, dealing in narcotics or controlled substances, possessing a controlled substance except marijuana, possessing more than one pound of marijuana, delivering or distributing a dangerous substance, and (for registered persons) intentionally violating drug laws.

3. This money was made available through the Anti-Drug Abuse Act of 1986.

4. The mean or average is not as useful as the median for examining length of stay over time because extreme values affect the mean. The median is simply the middle number in a distribution.

5. DCS data indicate that longer sentences have not been a major factor contributing to increases in length of stay. The median minimum sentence actually decreased from 18 months in 1978 to 14 months in 1986, while the median maximum sentence was 36 months for every year from 1978 to 1986 (DCS 1986d).

6. To speed the parole process, the Nebraska Parole Board recently advanced parole hearing schedules in order to permit the early identification and release of parole-eligible inmates. This allows more time to develop approved living and work arrangements, assuring that fewer paroles are delayed beyond eligible release dates. The parole board also increased the frequency of parole hearings to clear backlogs of "quiek dippers," or prisoners who are sentenced to one year or less for committing Class I misdemeanors (Bartee 1988). As a result of these and other efforts, the number of adult parolees in Nebraska jumped from 283 in February of 1987 to 420 in February of 1988 (DCS 1988).

7. Although the number of males in Nebraska who are between the ages of eighteen and thirty-nine peaked at 291,695 in 1985, the projection of males between these ages for 1990 is 289,144, which is not a very significant decrease (DCS 1986e).

8. The rated capacities of the Nebraska State Penitentiary and the Lincoln Correctional Center are 150 percent of their design capacities. (Design capacity is the number of inmates that planners or architects intended for a facility.) DCS administrators have determined the rated capacities of Nebraska's other prisons in terms of design, population and staffing (DCS 1986a).

9. Data on the average square feet per cell at the Nebraska Center for Women were unavailable.

10. Gaes and McGuire (1984) used longitudinal data, multiple institutions, and multiple measures of overcrowding, and also controlled for inmate characteristics (for example, age and prior record) and inmate prison activities (for example, education and work assignment).

11. The Nebraska Legislature approved part of the DCS request and provided money for the renovation of the Hastings facility, which opened in 1987. DCS plans to resubmit its proposal for funds to build the other two proposed correctional facilities (Falconer 1988).

12. DCS also uses prerelease, work release, and furloughs to relieve pressure on the prisons from overpopulation.

13. This estimate was derived by multiplying the per capita cost of housing an inmate at the Omaha Correctional Center ($13,983) by the number of male NVOZs sentenced to prison in 1987 (N = 235), by multiplying the per capita cost of housing an inmate at the Nebraska Center for Women ($21,331) by the number of female NVOZs sentenced to prison in 1987 (N = 46), and by summing the totals. This method may slightly overestimate costs because it counts the 54 offenders who were admitted and discharged in 1987 as staying in prison all year, and some offenders may be placed in community corrections centers (which are cheaper than prisons) before the end of their first year in prison. This overcounting, however, would be partially counterbalanced by the male NVOZs who are sent to the Nebraska State Penitentiary, where the per capita cost is $17,045, instead of the Omaha Correctional Center.

14. House arrest programs restrict offenders' free-time activities in order to reduce their opportunities to commit crimes. The least restrictive form of house arrest involves curfews; the most restrictive form uses a computer and an electronic monitoring device to monitor compliance with program requirements. House arrest may be part of ISP, or it may exist apart from ISP, as is the case with Nebraska's house parole program.

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CHILD DAY CARE POLICY ISSUES IN NEBRASKA

2

Christine M. Reed

This chapter looks at the Nebraska child day care market. A review of the day care arrangements made by working parents for their preschoolers indicates that the majority use home day care — in the home of a relative, friend, neighbor, or family day care home proprietor. This predominance, together with evidence that sixty percent of all day care is informal, unregulated care, suggests three policy strategies for improving the quality of home day care in Nebraska: strengthening and expanding family day care rules; subsidizing quality home day care for the working poor; and expanding specialized training for home day care providers.

Introduction

Why is child day care suddenly receiving so much attention? An unusual combination of social and demographic trends and research in child developmental psychology has focused the attention of Nebraska legislators, professionals and parents on this important issue. This chapter provides comprehensive information about the child care market in Nebraska and policy strategies to address that need.

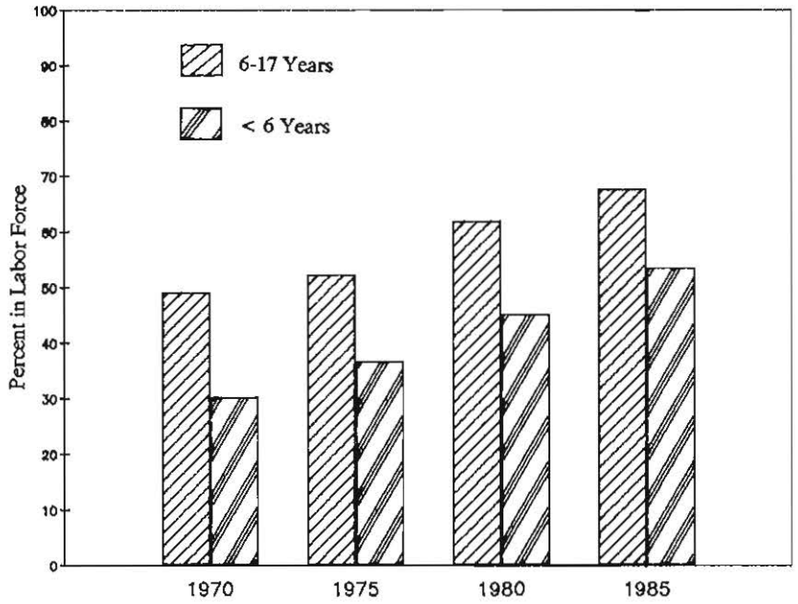
In 1987 there were an estimated 72,500 preschool-age children (five years and under) whose mothers were in the Nebraska labor force, and who therefore needed some kind of day care arrangement.[1] Including mothers in school and in job training programs in this estimate would report an even higher number of children in day care. According to a Nebraska survey conducted by the Center for Applied Urban Research (CAUR) during the summer of 1988, sixty-eight percent of working parents with primary responsibility for child care (usually mothers) work full time. Moreover, 80.7 percent use their regular child care for more than six hours a day.

At the national level, statistics point to a fundamental restructuring of work and family responsibilities. The national labor force participation rate of married women with their youngest child under six years old has risen dramatically, from 30.3 percent in 1970 to 53.7 percent in 1985 (figure 1).

This research was conducted with funds from the Urban conditions Research Program, Center for Applied Urban Research, College of Public Affairs and Community Service, University of Nebraska at Omaha.

The author wishes to thank the following individuals for their assistance: Gina Dunning, Joseph Baldassano, Tim Himberger, and Deb Dawson.

Figure 1 - Labor Force Participation Rates of Married Women, Husband Present, by Age of Youngest Child March of Selected Years, 1970-1985

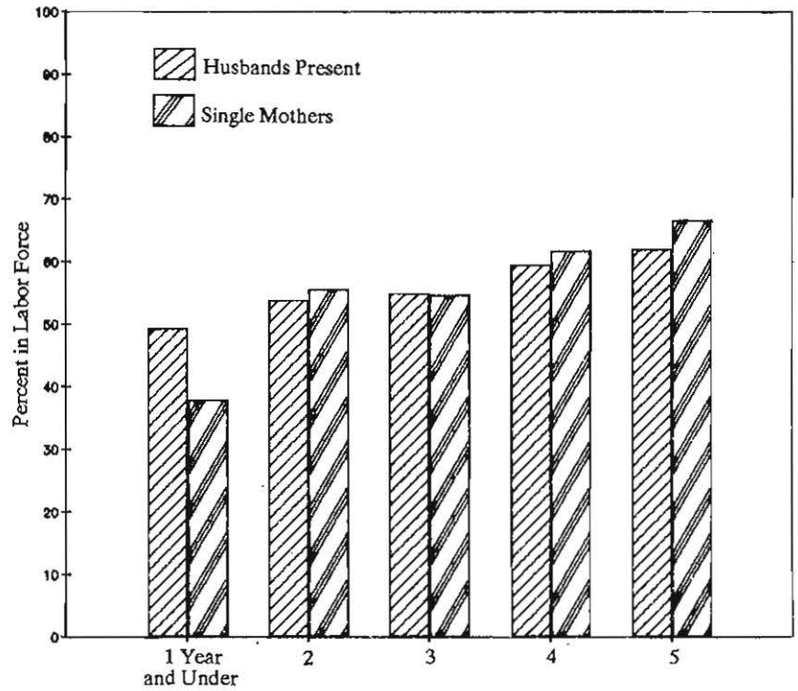


Source: *Monthly Labor Review*, Bureau of Labor Statistics, U.S. Department of Labor, February 1986.

Labor force participation increases with the age of the child; however, nearly half of all married women with a child one year old or under were in the labor force in 1985 (figure 2). In 1986, two-paycheck couples comprised sixty-one percent of all husband/wife families; one quarter of all families with children were single-parent families, headed mostly by women. Full-time, continuous employment has now become a reality for many women, married and single alike.

The question is not whether parents should use outside child care, but rather when it is used, what conditions promote positive development and minimize harm to young children.

Figure 2 - Labor Force Participation Rates of Women, with and without Husbands Present by Age of Youngest Child Under Six, 1985



Source: Compiled by author from *Monthly Labor Review*, Bureau of Labor Statistics, U.S. Department of Labor, February 1986.

The centrality of employment is one reason for heightened interest in child day care. A second factor is increased awareness of how the quality of child day care affects cognitive, emotional and social development. Our society has traditionally been, and continues to be, ambivalent about non-maternal care. However, the question is not whether parents *should* use outside child care, but rather when it is used, what conditions promote positive development and minimize harm to young children. Research consistently demonstrates that licensing standards regulating group size, staff-to-child ratio, and training of day care providers have a positive influence on children's day care experiences and, in turn, tend to make children more cooperative, more intellectually capable, and more emotionally secure (Belsky 1985).

Like all states, Nebraska has experienced a sudden, rapid increase in the need for child day care; however, as the following section will show, certain features of the state's child day care market are unique to Nebraska. This

chapter contributes four major findings about Nebraska's child day care market. First, compared to the nation as a whole, a higher percentage of Nebraska children are in home day care — in the homes of relatives, friends, neighbors, and family day care home (FDCH) proprietors. A second feature distinguishing the Nebraska child day care market is the high percentage of preschool-age children in registered day care homes compared to the percentage in licensed day care centers. Third, the lower the family income, the more likely working parents are to use informal, unregulated day care in private homes. Finally, compared to other states, Nebraska has relatively lenient home day care regulations, especially in the number of children allowed before providers are required to register. The following section describes the features of the child day care market in more detail.

The Child Day Care Market in Nebraska

The term *child day care* refers to the daily care arrangement during the hours that the primary caregiver of the child (usually the mother) is at work, looking for employment, in a job training program, or in school. The child care market includes a variety of arrangements. Care can be in the child's own home by the parents, who arrange their work schedules so that one spouse is always with the child; or by a relative or nanny. Arrangements can also be made in the home of a relative, friend, neighbor, or proprietor of an FDCH. Finally, care can be in a specially designated structure devoted to child care, such as a center or preschool. While day care arrangements can be made for any age child, this chapter examines only the day care arrangements for preschool-age children.

Compared with the country as a whole, more preschool-age children in Nebraska are in home day care — fifty-three percent of Nebraska children of working parents compared to about forty percent nationwide.

The distribution of primary child day care arrangements in Nebraska, for the youngest child under six years old of working parents, is shown in table 1. About one-fifth of these children are cared for in day care centers and preschools. Over half are in home day care. The rest, almost twenty-eight percent, are being cared for in their own homes, primarily by their fathers, or by their mothers while self-employed at home.

Table 1 - Distribution of Primary Child Care Arrangements in Nebraska for the Youngest Child Under Six Years Old of Working Parents, 1988

Primary Child Care Arrangements	Percent
Care in child's home	27.8
By spouse	11.1
By other relative	3.3
By nonrelative	4.6
By mother self-employed at home	8.8
Care in another home	53.4
By relative	6.6
By nonrelative	46.8
Organized child care	17.4
Day/group care center	15.1
Preschool/special program	2.3
Other	1.0
Total*	99.6

*Total does not equal 100 percent due to the effect of rounding.

Source: *Survey of Child Care Arrangements in Nebraska.* Center for Applied Urban Research, College of Public Affairs and Community Service, University of Nebraska at Omaha.

The national distribution of child care arrangements over the past ten years is shown in table 2. Compared with the country as a whole, more preschool-age children in Nebraska are in home day care — fifty-three percent of Nebraska children compared to about forty percent nationwide. (These figures do not reflect what percentage of private homes are registered or licensed, because the census does not collect this information.) Approximately the same percentage of children in Nebraska as nationally are in day care centers.

A survey of child care in Kearney, Nebraska, conducted in the summer of 1987 by the Bureau of Sociological Research at the University of Nebraska-Lincoln, found a distribution of child care arrangements similar to the 1988 Nebraska statewide survey. Fifty-one percent of respondents (full-time working parents with preschool-age children) said they used home day care. Twenty-two percent had an adult at home (immediate family member), and fourteen percent used child care centers or preschools (Booth, Amoloza, and Funk 1987).

There are 2,205 private homes in Nebraska that are registered with the Nebraska Department of Social Services (NDSS) as family day care homes.

Table 2 - National Distribution of Primary Child Care Arrangements for Children Under Five Years Old: 1977, 1982, 1984-85*

Primary Child Care Arrangements	1977	1982	1984-85
Care in child's home	42.6	39.7	39.1
By father	13.5	13.9	15.7
By other relative	12.1	11.2	9.4
By nonrelative	6.3	5.5	5.9
By mother self-employed at home	10.7	9.1	8.1
Care in another home	40.4	40.2	37.0
By relative	18.0	18.2	14.7
By nonrelative	22.4	22.0	22.3
Organized child care facility	12.5	14.8	23.1
Day/group care center	12.5	14.8	14.0
Preschool	NA	NA	9.1
Other/don't know/no answer	4.4	5.3	.7
Total §	99.9	100.0	99.9

*The 1977 and 1982 census surveys covered the child care arrangements for the youngest child under five years old; the 1984-85 special census study covered all preschool-age children in families with working mothers.

§ Totals may not equal 100 percent due to the effect of rounding.

Sources: "Child Care Arrangements of Working Mothers: June 1982," U.S. Department of Commerce Bureau of the Census, Series P-23, No. 129. "Who's Minding the Kids? Child Care Arrangements: Winter 1984-85," U.S. Department of Commerce Bureau of the Census, Series P-70, No. 9.

Nebraska law requires that a private home providing care for four or more children from different families self-certify that the provider has complied with Rules for Family Day Care, issued by the NDSS (NDSS 1986). Family day care home regulations contain rules on health and sanitation, fire safety, physical space, transportation, and other areas, as well as limits on the number of infants and children in a home.

Registered homes, together with licensed day care centers and preschools, make up the formal child day care market in Nebraska — care arrangements purchased in the open market but regulated by the government (see table 3). The remainder of child care arrangements purchased in the open market are considered to be informal: care by relatives or nannies in children's own homes, plus care in private homes by relatives, friends, neighbors, and proprietors of FDCHs who are not registered with the state.

Table 3 - Components of the Child Day Care Market

Formal Market	Informal Market	Nonmarket
• Registered home day care relative friend neighbor FDCH proprietor • Licensed day care center • Licensed preschool • Licensed special program	• In child's home by relative • In child's home by nanny • Unregistered home day care relative friend neighbor FDCH proprietor	• In child's home by parent • In child's home by sibling • In child's home by mother who is self-employed at home

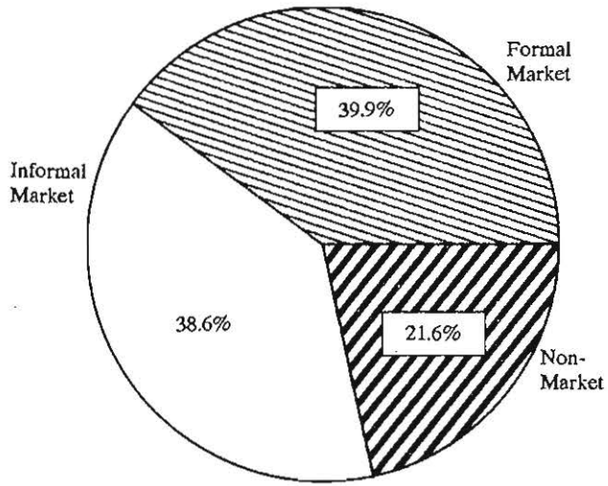
(Unregistered homes are distinguished from illegally operated or *underground* homes; many providers are not required to register because they care for fewer than four children or for children from only one family.) Finally, arrangements with members of the immediate family (for example, spouses dividing work schedules and child care responsibilities) are not subject to conditions of an economic market and are classified as non-market care (Robins and Spiegelman 1978).

As shown in figure 3, roughly two-fifths of Nebraska's preschool-age children with working parents are in formal care arrangements. Somewhat less than that — 38.6 percent — are being cared for informally. The rest are in the care of their immediate families, though both parents work, the majority of them full time. The size of the formal market in Douglas County is slightly larger than in the state as a whole, because of the higher percentage of preschool-age children in day care centers; however, when all metropolitan counties (Douglas, Sarpy, Washington, Lancaster and Dakota) are compared to all nonmetropolitan counties in Nebraska, child care arrangements across the formal, informal and nonmarket sectors are much the same.

Day care in private homes is apparently characteristic of this part of the country.

Nebraska not only has a higher percentage of home day care (both registered and unregistered) than the nation as a whole; but compared to other states, Nebraska ranks sixth in the percentage of preschool-age children in formal market care who are in registered homes— 48.1 percent (see table 4).

Figure 3 - Distribution of Child Care Arrangements for a Family's Youngest Child Under Six Years in Nebraska by Type of Market Care



Source: *Survey of Child Care Needs for Nebraska*. Center for Applied Urban Research, College of Public Affairs and Community Service, University of Nebraska at Omaha.

When Nebraska is compared with the six other states in the West North Central Region plus the two contiguous states outside the region, the state ranks fourth, behind North Dakota, Kansas and Minnesota, in registered home care (see table 5). In fact, six of the top ten states, as ranked in the last column of table 4, are from this region. Day care in private homes is apparently characteristic of this part of the country.

The number of registered private homes in Nebraska has more than doubled this decade, from 1,079 homes in 1980 to 2,205 in 1988. The total number of registered FDCH slots is now estimated to be 15,500 (NDSS 1988). Even more significant is the apparent increase in the percentage of home day care providers who have registered with the state, growing from an estimated fifteen percent (Public Health and Welfare Committee 1980) to the forty percent reported in CAUR's survey during the same period. FDCHs are more likely than homes of relatives, friends and neighbors to be registered (see figure 4).

Home day care is a distinctive feature of the state's child care market. This fact must be taken into account when formulating policy to address the unmet need for child care and quality standards for day care providers. The following section explores different perspectives on the issues of need and quality. A subsequent section proposes three policy strategies to improve the quality of home day care in Nebraska.

Table 4 - Characteristics of the Formal Child Day Care Market in the United States

State	Total Number Preschool Children in Child Care	Number in Centers	Number in Licensed/ Registered Homes	Percent in Centers	Percent in Licensed/ Registered Homes	Percent in Formal Market Care (Center and Home Combined)	Percent in Formal Market Care in Registered Homes	Rank Order of Percent in Formal Market Care in Registered Homes
Alabama	149,000	45,000*	17,550*	30.2	11.8	42.0	28.1	19
Alaska	30,000	8,571	2,329	28.6	7.8	36.3	21.4	25
Arizona	135,000	65,000	6,000	48.1	4.4	52.6	8.5	37
Arkansas	87,500	43,209	4,159	49.4	4.8	54.1	8.8	35
California	1,072,000	391,804	225,821	36.5	21.1	57.6	36.6	12
Colorado	133,500	45,220	29,408	33.9	22.0	55.9	39.4	9
Connecticut	101,500	55,216	16,357	54.4	16.1	70.5	22.9	24
Delaware	22,000	9,632	4,320	43.8	19.6	63.4	31.0	17
Florida	373,500	300,000	14,000	80.3	3.7	84.1	4.5	41
Georgia	228,000	111,580	34,368	48.9	15.1	64.0	23.5	22
Hawaii	46,000	21,924	1,006	47.7	2.2	49.8	4.4	42
Idaho	47,000	13,121	379	27.9	0.8	28.7	2.8	45
Illinois	444,500	111,295	33,747	25.0	7.6	32.6	23.3	23
Indiana	201,500	39,727	8,944	19.7	4.4	24.2	18.4	28
Iowa	107,500	20,271	11,176	18.9	10.4	29.3	35.5	13
Kansas	101,500	23,850*	43,011*	23.5	42.4	65.9	64.3	2
Kentucky	136,000	48,110	2,173	35.4	1.6	37.0	4.3	43
Louisiana	NA	NA	NA	NA	NA	NA	NA	NA
Maine	41,000	7,881	7,982	19.2	19.0	38.2	49.7	4
Maryland	156,000	55,000	30,000	35.3	19.2	54.5	35.3	14
Massachusetts	188,000	68,618	43,165	36.5	23.0	59.5	38.6	10
Michigan	329,000	106,067	48,064	32.2	14.6	46.8	31.2	16
Minnesota	167,000	42,032	66,955	25.2	40.1	65.3	61.4	3
Mississippi	NA	NA	NA	NA	NA	NA	NA	NA
Missouri	194,000	46,507	12,436	24.0	6.4	30.4	21.1	26
Montana	35,000	4,300	1,800	12.3	5.1	17.4	29.5	18
Nebraska	**66,500**	**13,680**	**12,660**	**20.6**	**19.0**	**39.6**	**48.1**	**6**
Nevada	33,500	9,900*	1,866*	29.6	5.6	35.1	15.9	30
New Hampshire	34,500	20,121	3,247	58.3	9.4	67.7	13.9	31
New Jersey	NA	NA	NA	NA	NA	NA	NA	NA
New Mexico	69,000	18,005	2,162	26.1	3.1	29.2	10.7	33
New York	604,000	185,325	27,804	30.7	4.6	35.3	13.0	32
North Carolina	209,000	132,692	33,145	63.5	15.9	79.3	20.0	27
North Dakota	30,500	1,696	6,937	5.6	22.7	28.3	80.4	1
Ohio	393,000	120,000	12,000	30.5	3.1	33.6	9.1	34
Oklahoma	139,500	60,652	5,744	43.5	4.1	47.6	8.7	36
Oregon	101,000	26,544	9,078	26.3	9.0	35.3	25.5	21
Pennsylvania	388,500	110,595	23,130	28.5	6.0	34.4	17.3	29
Rhode Island	31,000	5,490*	3,575*	17.7	11.5	29.2	39.4	8
South Carolina	126,000	71,308	5,330	56.6	4.2	60.8	7.0	40
South Dakota	31,500	4,076	2,947	12.9	9.4	22.3	42.0	7
Tennessee	161,500	98,511	2,271	61.0	1.4	62.4	2.3	46
Texas	731,000	426,328	165,282	58.3	22.6	80.9	27.9	20
Utah	97,500	17,175	10,500	17.6	10.8	28.4	37.9	11
Vermont	19,500	5,000	400	25.6	2.1	27.7	7.4	39
Virginia	202,500	68,739	2,235	33.9	1.1	35.0	3.1	44
Washington	174,000	41,625*	39,436*	23.9	22.7	46.6	48.6	5
West Virginia	NA	NA	NA	NA	NA	NA	NA	NA
Wisconsin	180,500	51,542	4,312	28.6	2.4	30.9	7.7	38
Wyoming	25,500	10,256	4,890	40.2	19.2	59.4	32.3	15
U.S. Average				38.0	12.5			

*Estimated by multiplying the number of centers by 45 children per center, and the number of homes by 6.5 children per home.

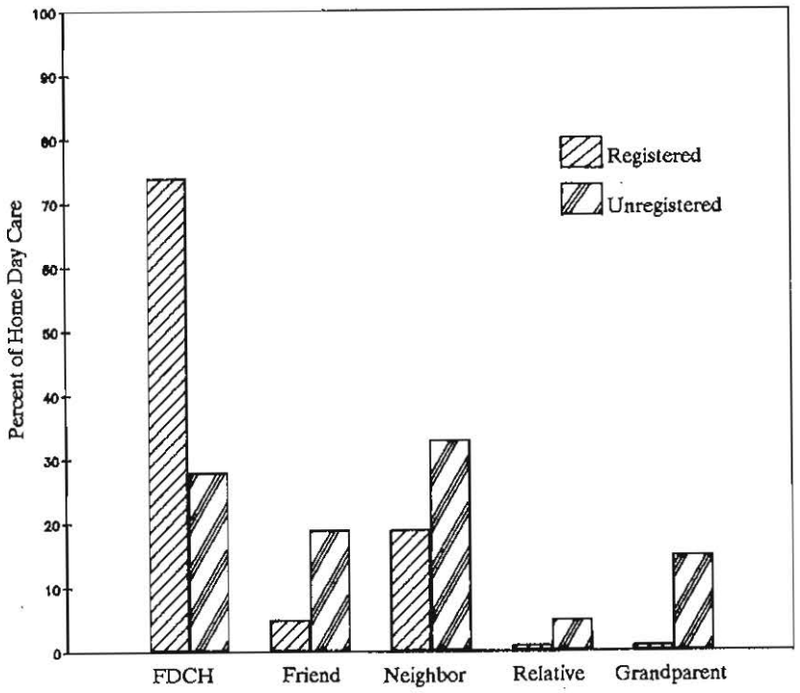
Sources: Compiled by the author from the *State Child Care Fact Book 1987*, Children's Defense Fund; and *Statistical Abstract of the United States 1987*, U.S. Department of Commerce, Bureau of the Census.

Table 5 - National Rank Order of Nebraska and Neighboring States of Percent in Formal Market Care Who Are in Registered Homes

State	National Rank Order (From Table 4)
North Dakota	1
Kansas	2
Minnesota	3
Nebraska	6
South Dakota	7
Colorado	9
Iowa	13
Wyoming	15
Missouri	26

Sources: Compiled by the author from the *State Child Care Fact Book 1987*, Children's Defense Fund; and *Statistical Abstract of the United States 1987*, U.S. Department of Commerce, Bureau of the Census.

Figure 4 - Distribution of Registered and Unregistered Home Day Care in Nebraska by Type of Provider



Source: Reed, Christine M., *Survey of Child Care Needs for Nebraska.*

Child Day Care Policy Issues in Nebraska

The sudden and rapid expansion of the child day care market in Nebraska is a trend of concern to legislators, professionals and parents for two reasons. First, there is the issue of whether the market has responded efficiently to the increased demand for child day care — whether the existing quantity and mix of arrangements meet the needs of working parents. Second is the concern about whether Nebraska laws adequately protect the health, safety and welfare of the estimated 72,500 young children who are now in continuous out-of-home care.

Measuring the Unmet Need for Child Day Care

There are multiple views of Nebraska's need for child day care, each with a different set of policy implications. The first perspective asserts that all existing child day care needs are met by the distribution of arrangements in table 1; if unmet needs exist, they will be met by formal and informal market service providers. This represents a laissez-faire approach to child day care. Stating that the unmet need is zero implies that there is only a minimal role for state government to play in regulating the health, safety and welfare of young children. This role would include subsidizing child day care services and training child day care providers to operate with professional standards.

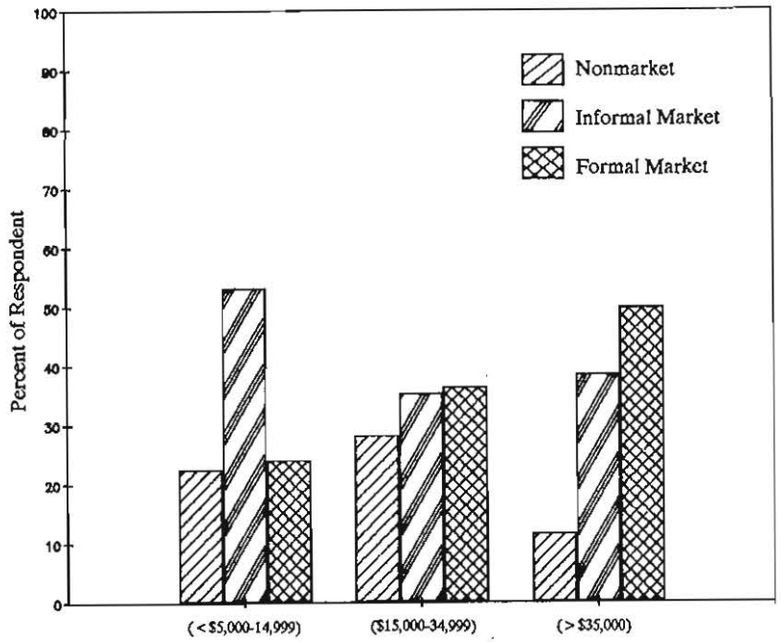
Unfortunately, there is no simple answer to the question of whether the child day care market addresses the needs of working parents.

A second perspective is that existing child day care arrangements meet the needs of most working parents, but that targeted subgroups should be identified for selective government assistance. Evidence from the 1988 Nebraska statewide survey indicates that the vast majority of respondents are satisfied with their current arrangements; however, low-income working parents are heavy users of informal market care (see figure 5). Survey respondents who cited affordability as a "most important" criterion in their choice of arrangements are more likely than others to split work shifts and child day care responsibilities (use nonmarket care); however, these were as likely to be middle-income as low-income families. The working poor, on the other hand, appear to be limited primarily to unregistered private homes, where their children are at greater risk for low quality day care due to large numbers of children and providers with little or no formal training in child

care. These findings suggest a strategy of selective government assistance to the working poor.

A third perspective argues that only a fraction of Nebraska's real need for child care has been met, and that a large gap continues to exist between the number of preschool-age children with working parents and the number of licensed and registered center and home day care slots. This gap can be expressed in terms of either the number of children in both nonmarket *and* informal market care, just the number in informal market care, or somewhere in between. There were an estimated 72,500 Nebraska preschool-age children in day care in 1987; roughly two-fifths were in licensed and registered center and home day care slots. According to this perspective, then, the unmet need is somewhere between the approximately forty percent in informal market care and the sixty percent in both nonmarket and informal market care (see figure 3). These percentages represent between 29,000 and 43,500 children. Aetive government regulation of all or most day care arrangements, subsidies to help families afford the higher costs associated with licensing and registration standards, and programs to foster professional child care standards are all policy strategies implied by this approach.

Figure 5 - Use of Different Child Care Arrangements by Income Groups



Source: *Survey of Child Care Needs for Nebraska*. Center for Applied Urban Research, College of Public Affairs and Community Service, University of Nebraska at Omaha.

Regardless of what working parents are able or willing to pay for child care, state government has a responsibility to protect the health, safety and welfare of children through quality day care services.

Unfortunately, there is no simple answer to the question of whether the child day care market addresses the needs of working parents. Empirical evidence presented in this chapter indicates that the market is fairly efficient at producing an adequate supply of child care — *adequate* as measured by the satisfaction of parents. While incomes clearly limit some families to unregistered home day care arrangements, other factors, such as preference for family atmosphere and a desire to maintain child care within the immediate family, also affect market demand. Studies have shown that demand for formal market care is price elastic; demand increases only as prices drop. This tendency applies to all income groups.

State government intervention is justified by the unmet child day care needs of working parents. However, as the previous discussion has shown, there are multiple perspectives on unmet need, each of them based upon a different philosophy about the proper role of government in family life. However, one of the major rationales for active government involvement is not parental need but the fact that a large number of Nebraska children are now exposed to non-maternal daily care, in large groups, by providers who often lack any formal training in early childhood development or day care management. Regardless of what working parents are able or willing to pay for child care, state government has a responsibility to protect the health, safety and welfare of these children through quality day care services.

Measuring Quality Child Day Care

Although child development specialists continue to disagree about the desirability of nonmaternal child care, particularly for infants, they do agree that the higher the quality of substitute day care the less likely will long-term, negative effects occur. The positive outcomes associated with child day care are different for various age groups. For infants and toddlers the concern is that full-time day care should not affect the mother-child relationship, so critical for healthy development. Studies have found that nurturing and stimulating care by the same provider over a period of time helps the infant adjust to being separated from his or her mother and does not disrupt the

bonding process. For preschool-age children, quality of child care received is measured by how cooperatively children play with their agemates and how responsive they are to their caregivers (social development), and by how well they perform on tests of cognitive and linguistic development (Belsky 1985).

It is clear from these studies that quality is a function of group size, staff-to-child ratios, and specialized training of day care providers. Preschool-age children tend to become confused and withdrawn in large groups, and caregivers have fewer opportunities to give young children individualized attention. Favorable ratios mean relief for caregivers from constant interaction with children; less need for strict rules to control children's behavior; and less exposure to physical danger for infants and toddlers. Finally, providers with specialized training in early childhood education, child development, and day care are more likely than others to give children appropriate cognitive and social stimulation. Significantly, studies indicate that formal education is less important in this regard than specialized training (Ruopp and Travers 1982).

Policy Strategies for Improving Child Day Care

Three policy strategies potentially affect the quality of child day care:

- Regulation of quality standards in home day care;
- Subsidies to improve the quality of home day care for low-income working parents; and
- Specialized training in early childhood education, child development, and day care in order to increase home day care provider competence and skill.

Strengthen and Expand the Scope of Family Day Care Rules

Presently, any provider caring for four or more children from different families is subject to Nebraska's family day care home regulations. Nebraska rules:

- Establish a ceiling of eight children of mixed ages (infants, preschool, school age);
- Set a minimum age of 19 years for the caregiver;
- Require providers to submit statements about their health and criminal records, including child abuse and neglect;
- Refcrence state health and sanitation and fire safety rules; and
- Establish guidelines for nutrition, immunization records, first aid supplies, medication, transportation of children, and physical space and safety.

As discussed previously, approximately forty percent of all home day care providers are self-registered with the Nebraska Department of Social Services, up from an estimated fifteen percent in 1980. The other sixty percent fall into three general categories: 1) homes providing care to three or fewer children or to children of one family; 2) homes operating illegally (underground operations); and 3) homes exempt from the rules because care is provided without compensation (provided by grandparents to their grandchildren, and so forth). The penalties for failure to comply are denial, suspension or revocation of a license, and a civil penalty of five dollars per child for each day in violation, after a finding by the NDSS director or district court. NDSS staff have primary responsibility for monitoring compliance with these rules (NDSS 1986).

Compared to other states, Nebraska has a somewhat lenient set of family day care home regulations (see table 6). Nebraska law permits self-registration, but many states require government inspection before granting a license to operate. Nebraska's threshold for registration is higher (more lenient) than average, and its ceiling on the number of preschool-age children per home is higher than the national average. Nebraska rules do

Table 6 - Selected Requirements of Family Day Care Rules by State

	License or Registration Required	Threshold*	Ceiling §	Limits on Infants	Training Require-ments	Physical Exam Required	Criminal Check Required
New England Region							
Connecticut	Lic.	2	6	Yes	No	Yes	Yes
Maine	Lic.	4	7	Yes	No	Yes	Yes
Massachusetts	Lic.	2	6	Yes	No	No	Yes
New Hampshire	Lic.	7	6	Yes	No	Yes	Yes
Rhode Island	Lic	5	6	Yes	Yes	Yes	Yes
Vermont	Lic.	7	7	Yes	No	Yes	Yes
Middle Atlantic Region							
New Jersey	Reg.	2	8	Yes	Yes	Yes	No
New York	Lic.	4	6	Yes	No	Yes	No
Pennsylvania	Reg.	5	7	Yes	No	Yes	Yes
East North Central Region							
Illinois	Lic.	4	8	Yes	No	Yes	Yes
Indiana	Lic.	7	10	No	No	No	No
Michigan	Reg.	2	6	No	No	Yes	Yes
Ohio	Lic.	2	6	Yes	No	No	No
Wisconsin	Lic.	5	9	No	Yes	Yes	No
West North Central Region							
Iowa	Reg.	6	6	No	Yes	Yes	Yes
Kansas	Reg.	1	6	No	No	Yes	Yes
Minnesota	Lic.	6	6	Yes	Yes	Yes	Yes
Missouri	Lic.	5	11	Yes	No	Yes	No
Nebraska	**Reg.**	**5**	**8**	**Yes**	**No**	**Yes**	**No**
North Dakota	Lic.	6	7	Yes	No	No	Yes
South Dakota	Reg.	12	12	No	No	No	No

- *continued*

Table 6 continued - Selected Requirements of Family Day Care Rules by State

	License or Registration Required	Threshold*	Ceiling §	Limits on Infants	Training Requirements	Physical Exam Required	Criminal Check Required
South Atlantic Region							
Delaware	Reg.	2	6	Yes	Yes	Yes	Yes
Florida	Reg.	10	10	No	No	No	Yes
Georgia	Reg.	5	7	No	Yes	No	Yes
Maryland	Lic.	2	6	Yes	No	Yes	Yes
North Carolina	Lic.	3	8	No	No	Yes	No
South Carolina	Reg.	2	6	No	No	No	No
Virginia	Lic.	7	10	Yes	No	No	No
West Virginia	Reg.	6	6	Yes	No	No	No
East South Central Region							
Alabama	Lic.	2	7	No	Yes	Yes	No
Kentucky	Lic.	5	6	Yes	Yes	No	Yes
Mississippi	Lic.	7	14	Yes	No	Yes	No
Tennessee	Lic.	2	7	Yes	Yes	Yes	No
West South Central Region							
Arkansas	Lic.	7	7	Yes	No	Yes	No
Louisiana	Lic.	1	6	Yes	Yes	Yes	No
Oklahoma	Lic.	2	5	No	No	Yes	No
Texas	Reg.	4	6	Yes	No	No	Yes
Mountain Region							
Arizona	Lic.	6	11	No	No	Yes	Yes
Colorado	Lic.	5	6	No	Yes	Yes	Yes
Idaho	Reg.	6	6	Yes	No	Yes	Yes
Montana	Reg.	3	6	No	No	No	No
Nevada	Lic.	6	7	Yes	Yes	No	Yes
New Mexico	Lic.	6	6	Yes	Yes	No	Yes
Utah	Lic.	5	6	Yes	Yes	Yes	Yes
Wyoming	Lic.	4	6	No	Yes	Yes	No
Pacific Region							
Alaska	Lic.	6	7	Yes	Yes	Yes	No
California	Lic.	4	6	Yes	No	No	Yes
Hawaii	Lic.	3	5	Yes	No	Yes	Yes
Oregon	Reg.	11	11	Yes	No	No	No
Washington	Lic.	2	6	Yes	No	No	Yes
National Average		4.7	6.2				

*Threshold is the number of preschool-age children for which licensing or registration is required. Methods for counting children against the threshold requirement vary; some states specify number of children, while others refer to number of families. Some states count the providers' own children in the thresholds. Family thresholds were standardized by assuming an average of two children per family. Thus, California's required licensing of providers caring for two or more families was converted to a child threshold of four. Similarly each provider was assumed to have an average of one child of her own in addition to children from other families. Thus, Nebraska's threshold is counted as five, although the rules specify registration is required if the provider cares for four or more children from different families, besides her own.

§ Ceiling is the maximum number of preschool-age children permitted by the license. As with the threshold, providers' own children may or may not be counted, depending on state rules. Ceilings were increased by one child in states where providers' children are not counted against the ceiling.

Source: *Survey of State Child Day Care Home Licensing Agencies*. Center for Applied Urban Research, College of Public Affairs and Community Service, University of Nebraska at Omaha.

not require training, and they permit a self-reported statement regarding prior arrests and convictions. Some states provide for a criminal record and fingerprint check.

Unfortunately, plans to upgrade family day care rules have focused primarily on physical condition, provider training and group size, but have not addressed the threshold requirement. Unless the threshold is lowered simultaneously, existing registered home day care providers will be forced to pass along to the parents the higher costs associated with improved quality standards, and unregistered homes will operate with a competitive advantage. The percentage of children in the formal market is likely to decline unless virtually all homes are required to meet the same standards.

Although the data are not shown, an analysis of the relationship between family day care rules in different states and the percentage of children in licensed/registered homes shows that the more stringent the state rules, the higher the percentage of children in formal market home day care, *if* the threshold is also stringent (low). This finding contradicts the conventional belief that regulation is a barrier to providers entering the formal child day care market.

Subsidize Quality Home Day Care for the Working Poor

Because a small, but significant, group of working parents are forced by low incomes to use informal market arrangements, and because their children are at greater risk for low quality day care, subsidies are one strategy for selectively improving the home day care market. However, subsidies must be large enough to make it financially feasible for providers to offer quality child care.

Changes are needed in the way the Title XX program operates in Nebraska in order to improve the quality of home day care available to the working poor.

At the present time, the major child day care subsidy program is Title XX. Nebraska Title XX income eligibility requirements target primarily low-income working parents and recipients of Aid to Dependent Children (ADC). In addition, single parents who are ADC recipients in Nebraska are required to register for the Job Support Program after their children are over six months old. Currently, 3,298 participants use child care support services under the Job Support Program; 1,686 while in job training programs and 1,612 while searching for employment or during the first 30 days after employment begins (NDSS). Funding for transitional child care will be extended to 90 days in January, 1989. When the new federal welfare reform law goes into effect, Nebraska will be required to provide child care

services on a sliding fee scale to Job Support participants for one year after initial employment.

Registered day care home providers tend to avoid taking Title XX children, because NDSS payments are lower than the market rate for registered child day care. Only thirty-six percent of the 236 homes in Omaha under contract with NDSS were registered in February, 1988; the other sixty-four percent were approved for Title XX contracts by NDSS using a procedure similar to, but somewhat less rigorous than, registration (United Way of the Midlands 1988).

Voluntary training programs available across Nebraska would potentially benefit an estimated 28,000 preschool-age children in unregistered homes, in addition to the approximately 13,750 in registered homes.

Title XX subsidies make adequate child day care affordable for many low-income parents; however, changes are needed in the way the program operates in Nebraska in order to improve the quality of home day care available to the working poor. Two strategies currently under discussion are increasing Title XX contract payments to registered homes and targeting certain payments to providers willing to upgrade the quality of their services through specialized training.

Expand Specialized Training for Home Providers

Programs to train home day care providers represent a third approach to improving the quality of child care. Training seeks to raise the overall quality of caregiving activities through support services, such as newsletters and peer networks; workshops and courses in childhood growth and development, age-appropriate activities, positive discipline, and behavior management; and training in small business management. Typically, training programs do not receive as much political support as subsidy programs, because the payoffs are longer term and less tangible. Research has clearly demonstrated, however, that training leads to higher quality child day care, both in centers and in homes.

There are several reasons to use training as a strategy to improve the quality of child day care. First, although Nebraska ranks sixth in the nation in the percentage of preschool-age children in formal market care who are in

registered day care homes, the state also has a substantial informal market. Voluntary training programs available across Nebraska would potentially benefit an estimated 28,000 preschool-age children in unregistered homes, in addition to the approximately 13,750 in registered homes. Second, research indicates that professional support networks and training, newsletters, and other forms of information exchange among service providers are more effective motivators to improve performance than are rules mandating specific conditions and behaviors. Therefore, licensing standards and training programs ought to be viewed as complementary strategies. Finally, while income subsidies are more appropriately targeted to families in need, provider training is a way to improve the overall quality of day care for all children in Nebraska.

Summary and Conclusions

It is important to remember that widespread interest and concern about child day care is a very recent phenomenon. Until the 1980s, only a fraction of mothers with young children were in the labor force. Government-funded child day care was primarily a social welfare service to families in crisis, and victims of child abuse and neglect were its main beneficiaries. The idea of day care for children from "normal" families is one that has yet to be completely accepted by parents, policy makers, and even child developmental psychologists. Yet Nebraska legislators are faced with the reality of 72,500 children under six years of age in continuous nonmaternal day care. The question for law makers is how best to serve their constituents' needs for affordable and adequate day care, while at the same time ensuring that costly quality standards are met by child day care providers.

While Nebraska policy makers are addressing the question of government's role in day care, employers must also adapt to the restructuring of work and family responsibilities between mothers and fathers. Research indicates that family stress generated by employment and child care scheduling conflicts will itself have long-term, negative effects on children. Thus, a state policy to address child day care needs to be followed by a longer term strategy to reduce the stress and enhance the quality of life for Nebraska families.

Endnote

1. The number of Nebraska preschool-age children in day care was calculated using the "County Superintendents' School District Census Report" (Nebraska Department of Education) and the 1985 national labor force participation rates for wives with husbands present, by the age of the youngest child:

Age (Years)	Number of Children		Labor Force Participation Rate (Percent)		Number of Children Needing Day Care
Under 1	15,905	x	49.4	=	7,857
1	20,062	x	49.4	=	9,911
2	22,140	x	54.0	=	11,956
3	22,708	x	55.1	=	12,512
4	24,131	x	59.7	=	14,406
5	25,537	x	62.1	=	15,858
Total					72,500

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FARM INCOME AND GOVERNMENT PAYMENTS TO AGRICULTURE IN NEBRASKA

3

James R. Schmidt

Farm income in Nebraska reached a record level of $2,117 million in 1987, of which $1,275 million (or sixty percent) was received in the form of direct government payments. This chapter traces the recent history of farm income and direct government payments and describes the elements of the farm program that have had significant influence upon the Nebraska economy. The sensitivity of the Nebraska economy to movements in the farm sector is analyzed. Results from an econometric simulation analysis indicate that relatively strong multiplier effects occur in the state economy as a result of movements in farm income.

Introduction

Nebraska's farm sector has endured wide swings in activity levels. The 1970s were particularly volatile with farm income doubling and then decreasing by half, twice in succession. This cycle was repeated in the early 1980s, in concurrence with the well-documented debt crisis and decline in land values. Farm income has subsequently improved from the decade's early performance, but only with the help provided by large infusions of direct government payments.

There is constant debate about the role and importance of the farm sector in the overall state economy. While there is little doubt that the farm sector is a strong force in various nonmetropolitan areas of the state, the metropolitan areas of the state are usually viewed as less responsive to farm sector movements.

Characteristics of the farm sector and its relationship to the state economy are addressed in this chapter. First, the performance of the farm sector — as expressed by farm income — is documented on a historical and geographic basis. The size of the farm sector's direct contribution to the state economy is described. In addition, recent data from the U.S. Department of Commerce and U.S. Department of Agriculture are illustrated and discussed. Second, the role of direct government payments in bolstering farm income is analyzed, again in historical and geographic contexts. Also, the emergence of the Conservation Reserve Program as an important economic force is noted. Third, results from simulating the effects of farm income

changes (for example, variations due to changes in direct government support) upon the state economy are presented. The relationship and sensitivity between the farm sector and the state economy is consequently demonstrated. Fourth, several policy issues are discussed.

The data show that a large volume of government payments have been pumped recently into Nebraska's farm sector. As a result, farm income posted a sequence of record levels and helped maintain the entire state economy on a reasonable, but not spectacular, growth path.

The data show that a large volume of government payments have been pumped recently into Nebraska's farm sector. As a result, farm income posted a sequence of record levels and helped maintain the entire state economy on a reasonable, but not spectacular, growth path. The results from simulating farm income changes show that the farm income multiplier is approximately 1.9 with respect to the income of the entire state economy. The proper interpretation and context of this important finding is discussed in more detail below.

Farm Income Situation

Every sector of a state economy has many dimensions and characteristics, some of which are measured routinely by public or private organizations, or both. The ability to generate income is a characteristic of all sectors and is therefore something upon which to base comparisons and track performance. The income of the farm sector and total personal income of the state economy are analyzed in this section.[1] The information used is compiled regularly by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. While other income accounts for the farm sector are maintained and published regularly by the U.S. Department of Agriculture, the BEA uses a common set of income accounting conventions for all sectors. Such uniform statistics must be used when comparing the farm sector and the balance of the state economy.

The farm income measure provided by BEA is the sum of income earned by farm labor and the net income earned by farm proprietors. In calculating the latter, cash receipts from the marketing of livestock, crops, and other products are added to other tangible receipts (including direct government payments and rent) and to miscellaneous income items (including imputed dwelling rents and home consumption). Then production expenses are deducted from the total receipts. Next, an additive adjustment for change in the value of inventories is made. Such an adjustment is necessary for products such as crops that were produced but not sold in the same year. Corporate farm income is excluded (in 1986, it was seven percent of the total farm income in Nebraska) to arrive at net farm proprietors' income. Labor income earned on farms is then added, and the result is farm income.

Table 1 shows the levels of farm income and total personal income in Nebraska for 1969-1987, as well as the percentage of the state's personal income received as farm income. As previously noted, farm income varied widely during that period. The 1970s began with several years of strong and sustained growth, but this pattern was followed by extreme oscillations from the mid-1970s to 1983, when farm income fell to $640.7 million. Farm income more than doubled in 1984 to $1,319 million, and it has continued to rise during the past three years. Substantial government payments, lower production cost totals, and moderate rises in selected agricultural prices have helped the recovery of farm income.

Because the farm sector portion of personal income has averaged a substantial 8.7 percent, the erratic behavior of farm income during 1969-87 transmitted directly to the behavior of personal income.

The percentage of Nebraska's personal income received as farm income also varied widely during 1969-1987. The average for that period was 8.7 percent, with the percentage being much lower in depressed farm income years. This average percentage is roughly equal to the annual percentages for each of the last three years, during which farm income has been recovering. To put these Nebraska percentages in perspective, the percentage of United States personal income received in the form of farm income has held steady at 1.2 percent during the last four years. Even after discounting the years of extremely low farm incomes, it is apparent that the Nebraska percentage for farm income has been trending downward.

Because the farm sector portion of personal income has averaged a substantial 8.7 percent, the erratic behavior of farm income during 1969-87 transmitted directly to the behavior of personal income. The effect was not strong enough to cause declines in personal income during that period, but

Table 1 - Farm Income and Personal Income in Nebraska, 1969-87

Year	Entire State			Nonmetropolitan Areas*		
	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income
	-Million Dollars-			-Million Dollars-		
1969	600.5	5,222.2	11.5	571.0	2,835.5	20.1
1970	539.9	5,592.9	9.7	519.8	2,974.5	17.5
1971	694.3	6,126.8	11.3	674.6	3,310.9	20.4
1972	812.3	6,782.6	12.0	790.5	3,694.4	21.4
1973	1,289.8	7,993.8	16.1	1,258.2	4,551.1	27.6
1974	806.3	8,312.5	9.7	784.6	4,502.7	17.4
1975	1,122.1	9,364.7	12.0	1,083.2	5,193.2	20.9
1976	622.9	9,869.1	6.3	599.8	5,254.1	11.4
1977	626.9	10,810.6	5.8	602.5	5,767.0	10.4
1978	1038.3	12,421.4	8.4	993.9	6,770.6	14.7
1979	1,127.0	13,851.5	8.1	1,087.2	7,560.8	14.4
1980	477.7	14,589.4	3.3	460.8	7,689.3	6.0
1981	1,280.8	16,861.6	7.6	1,234.4	9,201.2	13.4
1982	1,111.9	17,576.5	6.3	1,076.2	9,413.0	11.4
1983	640.7	17,986.6	3.6	613.7	9,355.8	6.6
1984	1,319.0	19,778.2	6.7	1,291.7	10,460.6	12.3
1985	1,701.9	20,828.8	8.2	1,634.6	10,993.4	14.9
1986	1,938.9	21,682.7	8.9	1,862.3	11,504.5	16.2
1987	2,116.8	22,845.2	9.3	NA	NA	NA

*Nonmetropolitan areas include all counties except for Douglas, Lancaster, and Sarpy.
Source: Bureau of Economic Analysis, U.S. Department of Commerce.

the annual growth rates were erratic, partially because of the farm income pattern. Estimates of the strength of the transmission effect from farm income to personal income are presented later in the chapter.

Nonmetropolitan Area Trends

The farm income portion of personal income is relatively low in Douglas, Lancaster, and Sarpy counties — the metropolitan counties of Nebraska. These three counties had the lowest farm-to-personal income ratios during 1986. Table 1 includes the histories through 1986 of farm income and personal income for the ninety nonmetropolitan counties in Nebraska. The percentage of personal income received as farm income is also shown. The average percentage over 1969-86 was 14.6. Disregarding the extremely low

farm incomes for many of the years shown in table 1, the trend of the percentages seems to be downward.

Personal income in the nonmetropolitan areas has had wider variance in growth rates than has income in the state as a whole, because of the greater role played by farm income. Two declines in personal income occurred during those periods that correspond to major drops in farm income. The period of 1979-81 illustrates the volatility of income movements. For example, from 1979 to 1980 personal income grew by 1.7 percent while from 1980 to 1981 the growth rate was a dramatic 19.7 percent. Erratic movements in farm income over these three years were largely responsible for the swings.

County Trends

The portion of personal income that is received as farm income varies widely by county. For county level information, the latest year for which full county detail is available, 1986, has been selected. In comparison to prior years, 1986 was a record high for farm income in the state. (Farm income improved slightly in 1987.)

Table 2 presents the ten counties of Nebraska that had the highest farm incomes during 1986. The percentages of personal income received as farm

Table 2 - Top Ten Nebraska Counties Ranked by Farm Income, 1986

County	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income
	-Thousand Dollars-		
Holt	54,347	179,848	30.2
Perkins	47,678	88,282	54.0
Clay	47,578	125,604	37.9
York	45,674	220,954	20.7
Platte	43,297	377,371	11.5
Fillmore	43,851	136,383	31.4
Dodge	42,292	464,919	9.1
Adams	39,764	414,885	9.6
Lincoln	38,543	436,044	8.8
Hamilton	38,387	129,635	29.6
Nonmetro State			16.2
State			8.9
U.S.			1.2

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

income are also shown. Of the top six counties, all but one show percentages that are substantially higher than the percentage for the nonmetropolitan area of the state.

Table 3 includes the ten counties with the highest percentages of personal income received as farm income. The majority of these counties have relatively low population and their economies are either dominated by or heavily oriented toward the farm sector. Figure 1 portrays geographic variations in farm income as a percentage of personal income in 1986.

Is a high degree of direct dependence upon the farm sector undesirable? It may be fashionable to think so, but there are cases to counter this generalization. Table 3 shows that Wheeler and Perkins counties received 72.9 and 54 percent, respectively, of their personal incomes in 1986 directly from the farm sector. This ranks them first and third in the level of direct dependence upon farm activity. Yet the per capita income of Perkins County ranked tenth among all counties in the United States, and the per capita income of Wheeler County ranked fourteenth. Only Alaska, New York, and Texas matched Nebraska's placement of more than one county in the top fourteen in the United States, in terms of per capita income.

Table 3 - Top Ten Nebraska Counties Ranked by Percentage of Personal Income Received as Farm Income, 1986

County	Farm Income	Personal Income	Percentage of Personal Income Received as Farm Income
	-Thousand Dollars-		
Wheeler	17,442	23,910	72.9
Hayes	16,843	25,527	66.0
Perkins	47,678	88,282	54.0
Keya Paha	6,202	13,736	45.2
Banner	5,505	12,379	44.5
Gosper	14,115	33,818	41.7
Dundy	20,117	50,456	39.9
McPherson	2,547	6,486	39.3
Clay	47,578	125,604	37.9
Logan	4,875	12,951	37.6
Nonmetro State			16.2
State			8.9
U.S.			1.2

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

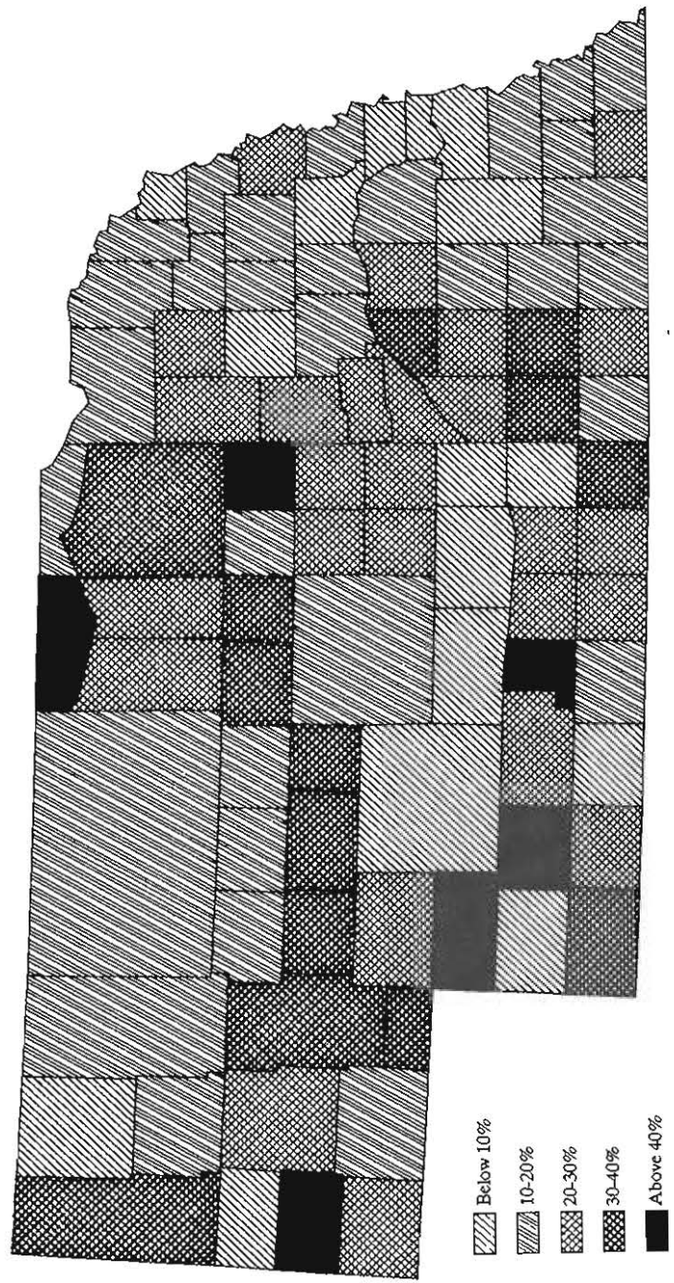


Figure 1 - Percentage of Personal Income Received as Farm Income, 1986

For reference map with county names, see page xiii

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Government Payments to the Farm Sector

Farm programs for 1986 through 1990 are under the purview of the Food Security Act of 1985. This act provided for a decline in loan rates for grains coupled with an expansion in deficiency payments designed to provide income support. Loan rates are the price support levels at which producers may place their grain under loan in the farm program. By lowering the effective price floors, food prices may now be lower than if earlier farm legislation been retained (Parlett and others 1987). Before 1986 there was a varied procession of farm legislation; however, there have been some common elements and goals in the legislation, both in the past and in the present.

There are two major forms of government payments made to the farm sector: nonrecoverable payments, usually referred to as direct payments; and recoverable payments. Direct payments consist of deficiency payments, diversion payments, disaster payments, reserve storage payments, conservation payments, and other payments that are generated from various farm programs. Direct payments are a primary element in the computation of farm income. There is no deduction posted against these payments in the income accounting system, so every dollar of direct payments is a dollar of farm income. Deficiency payments accrue to participating feed and food grain producers based upon the difference between the target price and the market price or loan rate, whichever of these differences is less. Soybeans do not have such a payment provision under current farm legislation. Typically, participation in these programs is contingent upon meeting required acreage reductions. However, opportunities for diverting acreage from the base acreage may also be available. Payments for participation in such a system are known as diversion payments. Disaster payments accrue to producers of food and feed grains when adverse weather or other severe conditions prevent planting or cause abnormally low yields. Reserve storage payments are made to producers who have agreed to store grain under certain conditions and for periods of time stipulated by the government.

Table 4 lists the direct payments made to Nebraska's farm sector from 1982 to 1987 in each of the relevant farm programs. Payments in the feed grain program rose dramatically during 1985-87, because producers received large deficiency and storage payments. Market prices for corn and wheat were below target prices during these years, so participation rates by producers in the feed grain and wheat programs were relatively high. Payments in the miscellaneous category of programs were high in 1983 and 1984, when the original payment-in-kind (PIK) program was instituted.

Concerning grain production, the recoverable payments portion of total government payments to the farm sector in a given year consists of the net value of Commodity Credit Corporation (CCC) loans. The net value of these

Table 4 - Direct Government Payments to the Farm Sector by Program and Net CCC Loans in Nebraska, 1982-87*

Program	1982	1983	1984	1985	1986	1987
			-Million Dollars-			
Direct payments	277.5	786.8	533.0	518.4	858.4	1274.8
Conservation§	5.2	6.5	6.0	7.1	8.9	91.4
Feed grain	97.8	189.6	33.0	373.4	596.0	921.9
Wheat	19.9	30.5	63.6	72.2	138.6	107.9
Wool act	0.5	0.6	1.5	1.2	1.2	1.2
Miscellaneous #	154.0	559.6	428.9	64.5	113.7	152.4
Net CCC loans	1033.5	16.8	-192.2	923.3	1065.0	198.5

*Includes both cash payments and PIK.

§ Includes amount paid under agriculture and conservation programs (Agriculture Conservation, Conservation Reserve, Emergency Conservation, and Great Plains Program).

The programs included are: Original PIK, Rural Clean Water, Clean Lakes, Animal Waste Management, Forest Incentive, Water Bank, Dairy Indemnity, Dairy Termination, Emergency Feed, Extended Warehouse Storage, Extended Storage, PIK Storage, and Milk Diversion.

Sources: U.S. Department of Agriculture, *Economic Research Service, Economic Indicators of the Farm Sector: State Financial Summary, 1986.* Washington, D.C., 1988. Data for 1986 and 1987 were obtained in unpublished form from USDA.

loans consists of the loans made in the year minus the repayment of loans that were made either in the same year or in previous years. Thus, net CCC loans do not enter as an item in the farm income accounting system, because the value reflects more than just current year activity.

CCC loans are important in the overall farm program. The process of generating CCC loans begins with the establishment of loan rates at the county level for eligible commodities. In Nebraska, the grains involved include wheat, corn, sorghum, soybeans, barley, oats and rye. Various rules have been used in setting these rates through the years. The current farm legislation created formulas for the basic loan rates for the remainder of the decade based upon percentages of preceding five-year averages of market prices. However, there is latitude to move the loan rates downward by as much as 20.0 percent for the grains, excluding soybeans, when market prices are 110.0 percent or less of the basic loan rate. Such adjustments were made during 1986 and 1987 and caused loan rates to fall dramatically on all grains except soybeans.

Producers and approved cooperatives that participate in the farm program can put their eligible grain into storage and receive a loan equal to the quantity of grain multiplied by the loan rate. This loan matures in nine

months but may be repaid at any time before maturity. The loan is non-recourse because the grain being held as collateral is considered to be full payment of the principal and interest upon maturity, even if the market price of the grain is below the loan rate. Thus, the loan rate functions as a price floor for the grain, although storage costs are owed to the CCC if title to the grain is forfeited by the producer. The volume of CCC loans made will obviously expand when market prices are below the loan rate. Net CCC loans will expand when market prices remain below loan rates for periods of time that exceed the maturities of a sufficient volume of loans. When market prices rise above loan rates, producers can take advantage of the price increases by repaying the loan principal, interest, and storage costs, and then marketing the grain. In the farmer-owned reserve program, which is included in CCC loan activity, loans are made for three-year periods with stipulations placed upon redemption prior to loan maturity.

The percentage of farm income received as direct payments has been high since 1983. Clearly, these payments have been instrumental in sustaining farm income growth since 1983 and have directly contributed to the state's rate of income growth over the past few years.

CCC loan proceeds to producers are counted as cash receipts in the income accounts of the year in which the loan was made. Only the difference between the loan value and the market value of the commodity, not the full amount of a CCC loan, can be viewed as a subsidy to the producer. Data on this difference are not readily available on a statewide basis. Estimating the difference seems impractical because the potential market value of crops under loan cannot be based upon observed market prices. Market prices would change in the absence of the loan program. The net CCC loan totals for Nebraska during 1982-87 are presented in table 4. Very high levels of loan activity occurred during 1985 and 1986. Farm income was definitely given a boost from the loan program; persistent positive differentials existed between loan rates and market prices during these years.

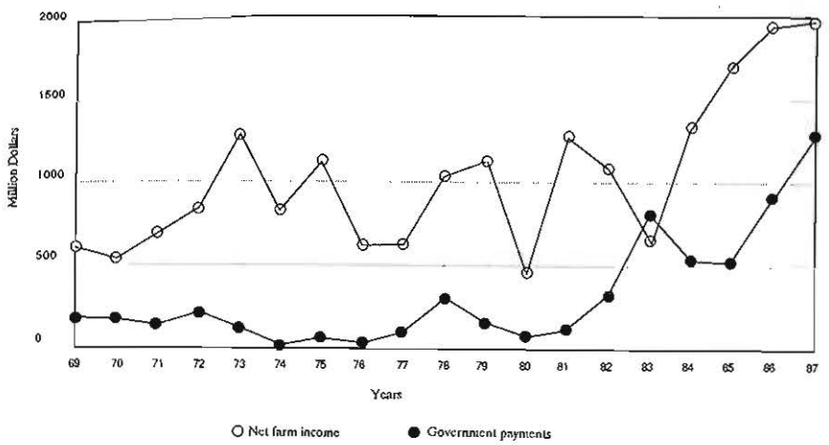
Table 5 contains the levels of direct payments to the farm sector of Nebraska during 1969-87. Farm income and the percentage of farm income received as direct payments are also included. Figure 2 provides a trend line of the data. The years in which direct payments have provided major boosts to farm income are apparent from the table and graph. In 1983, the year of the sizeable PIK program, direct payments exceeded farm income, so the farm sector had a net loss in the absence of the payments. The 1983 level of direct payments was almost triple the level of 1982, which had been the highest level since the first year listed in the table, 1969. Direct payments dropped from the 1983 level by roughly $250 million and $270 million in 1984 and 1985 respectively, but advanced in 1986 to $858.4 million and in 1987 to $1,274.8 million. Large deficiency and storage payments in wheat and the feed grain programs fueled this rise.

Table 5 - Direct Government Payments to the Farm Sector and Farm Income in Nebraska, 1969-87

Year	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Million Dollars-		
1969	200.6	600.5	33.4
1970	203.0	539.9	37.6
1971	171.0	694.3	24.6
1972	233.3	812.3	28.7
1973	151.8	1,289.8	11.8
1974	21.0	806.3	2.6
1975	71.7	1,122.1	6.4
1976	36.6	622.9	5.9
1977	92.9	626.9	14.8
1978	268.6	1,038.3	25.9
1979	132.7	1,127.0	11.8
1980	82.9	477.7	17.4
1981	101.0	1,280.8	7.9
1982	277.5	1,111.9	25.0
1983	786.8	640.7	122.8
1984	533.0	1,319.0	40.4
1985	518.4	1,701.9	30.5
1986	858.4	1,938.9	44.3
1987	1,274.8	2,116.8	60.2

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 2 - Direct Government Payments to the Farm Sector and Farm Income in Nebraska, 1969-1987



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The percentage of farm income received as direct payments has been high since 1983. Clearly, these payments have been instrumental in sustaining farm income growth since 1983 and have directly contributed to the state's rate of income growth over the past few years. The fact that the payments now constitute a significant portion of farm income— 60.2 percent in 1987— shows the vulnerability of the farm sector and the state to declines in federal government payment levels. Significant drops in payment levels in the future without offsetting increases in cash receipts or declines in production costs will have serious repercussions throughout the state economy.

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County Detail

Great variation exists among counties regarding the amount of direct payments received under farm programs. Hamilton County received the largest amount — $26.7 million— in 1986, while Grant and Hooker counties each received less than $50,000. Table 6 provides direct payment amounts for the ten counties receiving the highest level of payments in 1986. Farm income and the percentage of farm income received in the form of direct payments are also given. Eight out of the top ten counties had percentages of farm incomes received in the form of direct payments that were above the state percentage of 44.3. Table 7 shows the same data categories as table 6, but for the ten counties that had the highest farm incomes in 1986. It is not surprising that six counties appear in both tables as the percentage of farm income received as direct payments is quite high for several of the high farm income counties.

Table 6 - Top Ten Nebraska Counties Ranked by Direct Government Payments, 1986

County	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Thousand Dollars-		
Hamilton	26,670	38,387	69.5
York	23,683	45,674	51.9
Perkins	22,747	47,678	47.7
Phelps	22,259	35,169	63.3
Holt	19,794	54,347	36.4
Fillmore	19,142	42,851	44.7
Kearney	18,840	29,250	64.4
Buffalo	18,830	33,186	56.7
Clay	18,461	47,578	38.8
Antelope	18,361	31,938	57.5
Nonmetro State			45.7
State			44.3
U.S.			27.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Table 7 - Direct Government Payments Received in the Ten Nebraska Counties of Highest Farm Income, 1986

County	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Thousand Dollars-		
Holt	19,794	54,647	36.4
Perkins	22,747	47,678	47.7
Clay	18,461	47,578	38.8
York	23,683	45,674	51.9
Platte	16,066	43,297	37.1
Fillmore	19,142	42,851	44.7
Dodge	10,126	42,292	23.9
Adams	18,244	39,764	45.9
Lincoln	15,379	38,543	39.9
Hamilton	26,670	38,387	69.5
Nonmetro State			45.7
State			44.3
U.S.			27.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The dependence of all county farm sectors upon direct payments is clearly illustrated in figure 3. Fifty-six counties received over forty percent of farm income as direct payments; forty-two counties were in the forty to sixty percent range. Counties with farm sectors that are dominated by wheat and feed grain production had the higher percentages. Table 8 shows the ten counties that had the highest percentages of farm income received as direct payments during 1986. Obviously, the farm sectors of these counties were very dependent upon direct payments in 1986. Such high percentages make the county economies very susceptible to income declines if payments decline.

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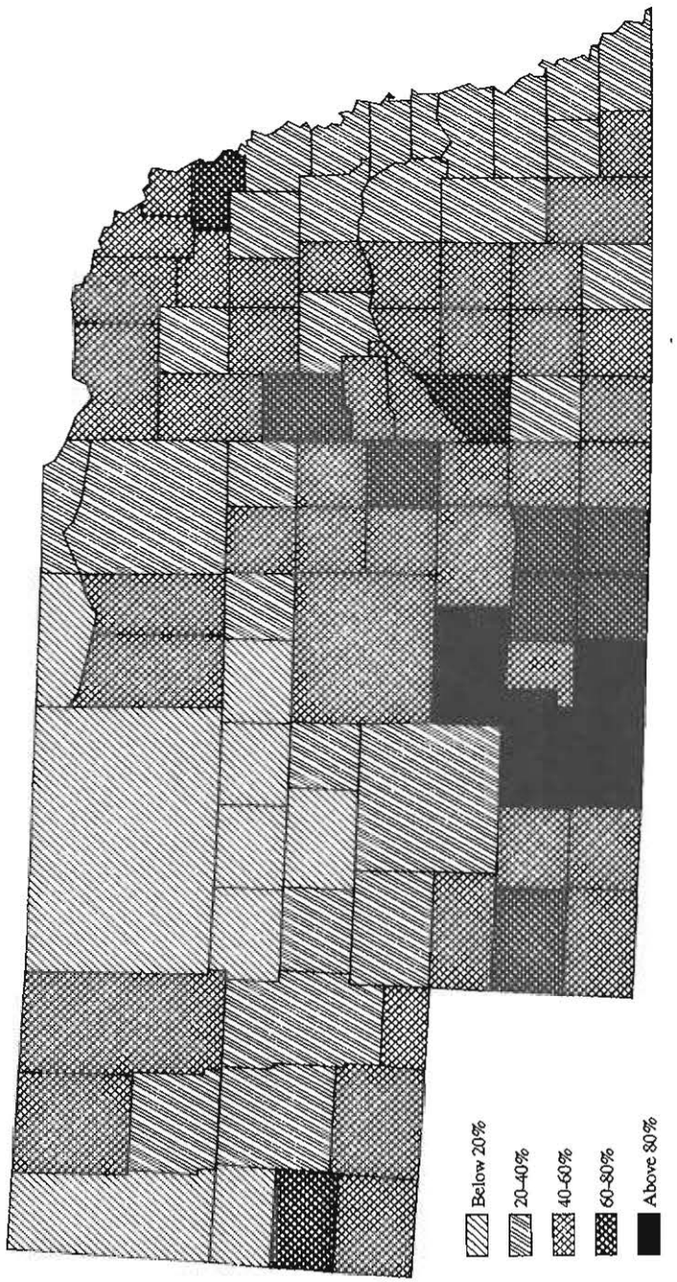


Figure 3 - Percentage of Farm Income Received as Direct Government Payments, 1986

For reference map with county names, see page xiii.

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Table 8 - Top Ten Nebraska Counties Ranked by Percentage of Farm Income Received as Direct Government Payments, 1986

County	Direct Government Payments	Farm Income	Percentage of Farm Income Received as Direct Payments
	-Thousand Dollars-		
Furnas	12,395	10,936	113.3
Frontier	11,099	10,923	100.8
Red Willow	11,463	13,002	88.2
Dawson	17,938	20,694	86.7
Harlan	10,284	13,005	79.1
Thurston	5,163	6,649	77.7
Banner	4,224	5,505	76.7
Hamilton	26,670	38,387	69.5
Franklin	10,720	15,693	68.3
Boone	15,682	23,343	67.2
Nonmetro State			45.7
State			44.3
U.S.			27.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The importance of direct payments as part of the total personal income of the state and counties is documented for 1986 in table 9 and figure 4. For the state as a whole, four percent of total personal income came in the form of direct payments in 1986, and that year was the highest percentage during the 1969-86 period. Thirty counties had percentages between ten and twenty, while thirty-one counties were in the five-to-ten percent range.

While the percentages of farm and personal income received as direct payments were high for certain counties and the state in 1986, it is not inevitable that economic disaster will strike if payments decline. Using Hayes County from table 9 as an example, direct payments declined from $7.3

Market movements may tend to counteract payment increases or decreases. Every major farm bill or minor program change will affect the balance between market forces and eventual payment amounts.

Table 9 - Top Ten Nebraska Counties Ranked by Percentage of Personal Income Received as Direct Government Payments, 1986

County	Direct Government Payments	Personal Income	Percentage of Personal Income Received as Direct Payments
	-Thousand Dollars-		
Banner	4,224	12,379	34.1
Hayes	6,949	25,527	27.2
Perkins	22,747	88,282	25.8
Gosper	8,291	33,818	24.5
Frontier	11,009	45,239	24.3
Hamilton	26,670	129,635	20.6
Chase	14,084	68,690	20.5
Dundy	10,145	50,456	20.1
Harlan	10,284	52,857	19.5
Franklin	10,720	56,446	19.0
Nonmetro State			7.4
State			4.0
U.S.			0.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

million in 1984 to $6.9 million in 1986, but personal income rose substantially from $18.8 million to $25.5 million.

Table 5 shows that in Nebraska, direct payments decreased and farm income increased during 1984 and 1985. Similarly, direct payment increases were associated with farm income decreases when comparing 1981 with 1982 and 1982 with 1983. Market movements may tend to counteract payment increases or decreases. Every major farm bill or minor program change will affect the balance between market forces and eventual payment amounts. However, higher percentages of income as direct payments will obviously be associated with greater risks of volatile income changes if payment declines are not offset, for example, by market increases.

Conservation Reserve Program

The 1985 farm bill contains a Conservation Reserve Program (CRP) designed to idle acreage meeting erodibility requirements. The announced goal was to place forty to forty-five million acres nationwide into the program. To be considered for CRP, landowners must submit bids of acreage amounts and annual payments per acre to the Department of Agriculture during intermittent enrollment periods. Accepted bids are awarded contracts

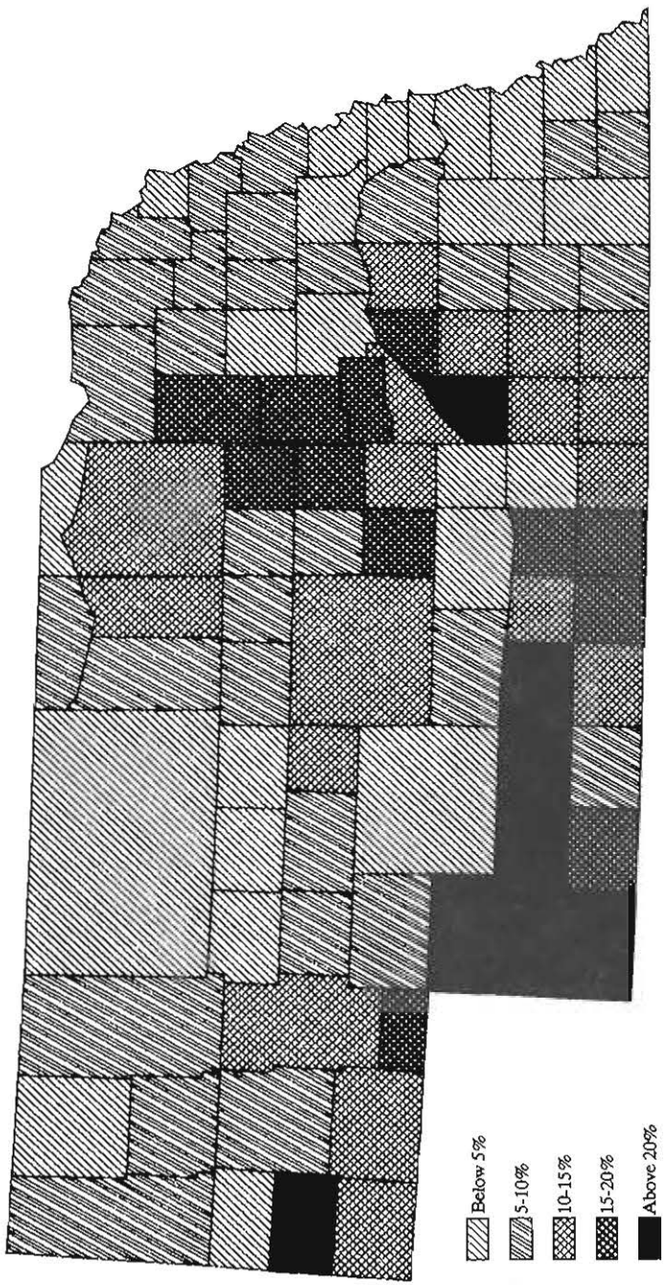


Figure 4 - Percentage of Personal Income Received as Direct Government Payments, 1986

For reference map with county names, see page xiii.

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

to receive the annual payments for a period of ten years. Cover must be established on the enrolled acreage, but a cost-sharing program is available for this purpose. Through the sixth enrollment period of February 1-19, 1988, 1,057,945 acres in Nebraska were placed in the CRP.[2] The fourth enrollment period, conducted in 1987, had the highest activity, when about one-half million acres were enrolled. The total annual payment accruing to the acres enrolled is $58,119,543, resulting in an average payment per acre of $54.94.

While the total annual payment is a small percentage of, for example, the recent levels of all direct government payments to Nebraska, it represents a stable flow of funds that is guaranteed over an extended period of years.

While the total annual payment is a small percentage of, for example, the recent levels of all direct government payments to Nebraska, it represents a stable flow of funds that is guaranteed over an extended period of years. Market conditions and elements in the production-based programs may change, but the CRP will remain a source of income stability, at least in nominal terms. Yet, in reality, when discounted for inflation, the value of these fixed payments begins to erode from the beginning and will continue to do so.

The importance of the CRP varies widely by county. Figures 5 and 6 portray estimates of the acreage enrolled and annual payments made for Nebraska counties through the sixth enrollment period. Only the range of acreage in each county is provided, because the estimates are subject to revision. Kimball and Banner counties lead in acreage; Pawnee and Dixon counties join them as the counties receiving the highest payment levels.

Simulation of Farm Income Effects

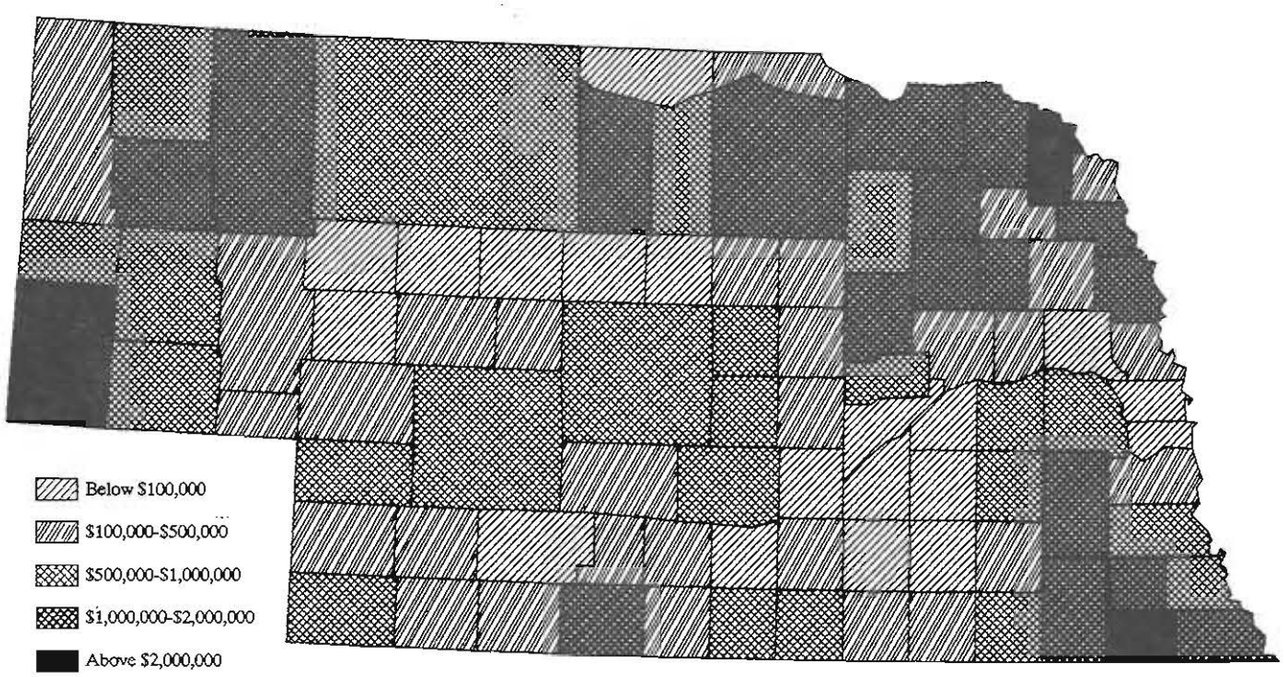
An econometric model of Nebraska was constructed for estimating and simulating the effects of farm income movements upon the state economy. In simplest terms, an econometric model is a set of equational relationships involving a diverse set of variables that are present in a regional economy. Annual data over the 1969-87 period were used to formulate the relation-

Figure 5 - County Acreages Enrolled in the Conservation Reserve Program (Through Sixth Enrollment Period)

Source: U.S. Department of Agriculture.

For reference map with county names, see page xiii.

Figure 6 - Annual Payments Under the Conservation Reserve Program (Through Sixth Enrollment Period)



Source: Estimates based on data from U.S. Department of Agriculture.

For reference map with county names, see page xiii.

ships within the model. By making assumptions about the values of key economic variables, known as *drivers*, simulations of various economic activity variables can be carried out. Farm income is one of the drivers in the model, so various scenarios about farm income behavior can be considered. As a result, the strength of the transmission from farm income through the rest of the economy can be measured. The simulation period used is 1988-93.

The first task is to establish a baseline so that differing farm income scenarios can be compared with a norm. Assumptions for the driver variable values must be made in order to construct the baseline. The baseline used here assumes annual growth rates of seven percent for U.S. personal income and five percent for the U.S. consumption deflator (price index) through the simulation period. The farm income assumption in the baseline holds the levels during the 1988-93 simulation period at $1,990.8 million, BEA's first-announced level of 1987 farm income.

Declining Government Support Programs

Table 10 contains the baseline values and three scenario simulations for selected variables (farm income, total personal income, taxable retail sales, nonagricultural employment, and farm employment). The first scenario shows farm income declining by $100 million during each successive year of the simulation period. These drops can be viewed as the result of declines in government support programs that are not offset by gains in cash receipts or gains in other positive elements from the farm income statement. Total personal income of the state falls by $190 million, from the baseline value of $23,778 million to $23,588 million, in the initial year of the decline pattern. Because farm income is a dollar-for-dollar entry into the personal income accounting system, $100 million of the $190 million decline is the direct effect from the farm income drop. The remaining $90 million decline is suffered by other sectors as they react to the farm income decline. Taxable retail sales fall by $67.4 million in response to the personal income decline, while the drops in farm employment are very minor because of the absence of a strong historical relationship between farm employment and income.

The indirect effects show slight growth relative to the direct effects over time. In the last year of the simulation period, farm income is placed $600 million below the baseline value. Personal income drops by $1,210 million, from $30,900 to $29,690 million; so subtracting the $600 million direct decline leaves an indirect effect of a $610 million decline. The ratio of the indirect and direct effects was 0.9 in the first year, but it has risen to 1.02 by the final year of the simulation period. Taxable retail sales in the final year show a $431 million decline in response to the farm income decline from the baseline.

Table 10 - Farm Income Simulations*

Variable	1988	1989	1990	1991	1992	1993
			-Million Dollars-			
Farm income:						
Baseline	1,990.8	1,990.8	1,990.8	1,990.8	1,990.8	1,990.8
Scenario 1	1,890.8	1,790.8	1,690.8	1,590.8	1,490.8	1,390.8
Scenario 2	2,090.3	2,194.9	2,304.6	2,419.8	2,540.8	2,667.9
Scenario 3	1,851.4	1,721.8	1,601.3	1,489.2	1,385.0	1,288.0
Personal income:						
Baseline	23,777.5	24,962.6	26,289.9	27,714.8	29,437.4	30,900.0
Scenario 1	23,588.3	24,574.0	25,697.9	26,917.5	28,434.0	29,690.1
Scenario 2	23,965.7	25,358.8	26,908.4	28,568.6	30,539.0	32,262.4
Scenario 3	23,513.7	24,439.5	25,519.9	26,712.6	28,218.2	29,478.3
Taxable retail sales:						
Baseline	10,369.4	10,785.8	11,258.9	11,766.6	12,380.4	12,901.7
Scenario 1	10,302.0	10,647.3	11,047.8	11,482.4	12,022.9	12,470.5
Scenario 2	10,436.5	10,927.0	11,479.2	12,070.8	12,773.0	13,387.1
Scenario 3	10,275.0	10,599.4	10,984.4	11,409.4	11,946.0	12,395.0
			-Employees-			
Non-ag employment:						
Baseline	664,315	669,648	676,160	682,889	690,748	697,002
Scenario 1	663,211	667,498	673,049	678,913	686,000	691,569
Scenario 2	665,414	671,841	679,411	687,148	695,965	703,127
Scenario 3	662,776	666,753	672,115	677,894	684,985	690,627
Farm employment:						
Baseline	69,590	68,497	67,506	66,548	65,604	64,665
Scenario 1	69,520	68,408	67,415	66,464	65,527	64,594
Scenario 2	69,660	68,589	67,602	66,644	65,697	64,753
Scenario 3	69,493	68,379	67,394	66,451	65,523	64,598

*Scenario 1 has farm income declining by $100 million during each successive year of the simulation period. Scenario 2 has farm income values reflecting an annual increase of five percent. This rate of growth matches the assumed inflation rate and leaves farm income constant in real terms over the simulation period. Scenario 3 is based upon an annual seven percent decline in farm income.

Despite the declines in performance from the baseline, the magnitude of drops in farm income under scenario 1 are not sufficient to halt the growth of personal income, retail sales, or employment. Growth rates of these aggregates are, of course, lowered, with the average annual growth rate of personal income turning out to be under five percent during the simulation period. The assumption of a five percent inflation rate in the scenario implies that the average growth rate in real personal income is slightly

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Rising Farm Income

The second scenario is positive in its assumptions for the farm sector. Farm income values in this scenario show an annual increase of five percent. This rate of growth matches the assumed inflation rate, with farm income constant over the simulation period. Farm income in the first year is about $99.5 million higher than the baseline value. Personal income rises by $188.2 million from the baseline and reflects the same sensitivity to farm income, but in a positive growth direction, that was observed in the negative direction under the first scenario. Taxable retail sales rise by $67.1 million from the baseline. By the sixth year of the period, personal income has exceeded the baseline by $1,362 million ($685 million of this is the indirect effect and $677 million is the direct effect from the farm income rise). The annual growth rates of personal income average a little above six percent in this second scenario, a rate that is above the assumed inflation rate of five percent. Thus, growth for the balance of the state economy is assured if farm income growth keeps ahead of the rate of inflation. However, the Nebraska economic growth rate would still fall short of the rate of growth in the U.S. economy.

Declining Farm Income

A third scenario based upon an annual seven percent decline in farm income is also given in table 10. The same patterns discussed in the context of the first scenario are repeated, but the magnitudes of the declines are greater.

Policy Issues

The range of farm income possibilities covered in the scenarios provides useful information on the manner in which the Nebraska economy reacts to farm sector movements. Reaction appears to be relatively strong with total effects upon personal income being about 1.9 times the amount of the change in farm income during the same year. This effect rises slightly to around a factor of two for later years if the pattern of farm income change repeats itself. Clearly, erratic behavior in farm income is always transmitted to the entire state economy. Other sectors of the economy have shown more stable growth patterns, which have tended to dilute — although not fully — the instabilities induced by the farm sector over time.

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The strength in farm income during the past few years has helped the entire state economy to move forward. As outlined above, direct government payments to the farm sector have played a major role in the farm income increases. The percentages of farm income received in the form of direct payments have been 40.4, 30.6, 45.0 and 64.0 percent for the respective years in the 1984-1987 period. The corresponding annual increases in farm income have been 29.0, 13.9 and 9.2 percent. Approximately four percent of the state's entire personal income was in the form of these direct government payments in 1986, and the percentage grew to 5.6 in 1987. If government farm payment levels decline in the future without compensating income gains from agricultural market activity (or some other activity in another sector), then the entire state will be adversely affected. Perhaps more alarming, personal income in certain counties of the state has been dependent upon direct payments to an extremely high degree. For example, selected counties in the southwest portion of Nebraska (see figure 4 and table 9 for specific counties and data), received between 19 and 34.1 percent of their total personal income in the form of direct government farm payments in

1986. Another severe agricultural depression or major cuts in government farm payments could well devastate that region in particular.

Without sustained long-term recovery in commodity prices, Nebraska's farm income level will continue to be determined as much by prevailing federal legislation as by market receipts and operating expenses. The policy provisions contained within the farm programs are under federal— not state — control. Future farm legislation enacted to succeed the 1985 farm bill will be a critical factor in determining the growth path for Nebraska's economy in the early 1990s. While Nebraskans should do all they can to make their opinions known concerning federal farm policies, and should lobby vigorously for program provisions that are favorable to the state, actions more directly under the control of state policy actors must be undertaken. Following are some policy issues which should be addressed by Nebraskans.

State Rural Policy

The statewide and county data on personal income and direct government farm payments are indicative of the agricultural dependence of many Nebraska counties. Recent calls for economic diversification appear to be well founded in light of the data analyzed in this chapter. While any rural development strategy in Nebraska needs to have a basic focus on job creation in both food and fiber *and* nonfood and nonfiber industries, several issues warrant special attention.

Without sustained long-term recovery in commodity prices, Nebraska's farm income level will continue to be determined as much by prevailing federal legislation as by market receipts and operating expenses.

Targeting Two Agricultural Economies. First, while rarely appearing in pure form, it appears that two farm economies operate in Nebraska. One is meat production, and it is driven more by market forces than by direct government payment programs. The other is oriented to food and feed grain production and the accompanying government policies and payment programs. Counties dominated by each of these agriculture sectors may exhibit different income trends. As a result, when farm incomes are up in food and feed grain producing counties, they will not necessarily be up in ranching counties (if the market for meat is down, for example). A state rural development strategy will thus need to take these differences into account. Resources and programs should be targeted according to degree and type of agriculture dependence as well as other factors, such as level of income. In simplest terms, counties with differing agricultural economies will perform differently and rural development strategies need to be targeted accordingly.

The Linkage Between State and Federal Policy. Second, rural development efforts in Nebraska must incorporate and build upon the dynamics of federal farm policy. For example, growing alternative crops represents an important development option for rural Nebraska. Yet any effort to redirect agricultural activity will have to take into account the fact that federal farm programs now determine, in varying degrees of completeness, the income streams of producers. This means that new rural development ventures such as crop diversification efforts in Nebraska will have to provide the same income opportunities as federal government farm programs in order to get producers to switch crops.

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The implication is that Nebraska state government may have to provide financial inducements to get producers to behave in new ways (growing alternative crops, for example). While growing alternative crops may be in the interest of the state as a whole, such behavior (without financial inducements) might not be in the short-run interest of the individual producer, given current federal farm policy.

Helping People vs. Places. Depopulation and resettlement from rural areas of the state raise additional policy issues. These trends in population movement may well be irreversible, with more than three-fourths of Nebraska's counties having their peak population in 1930 or earlier (Deichert 1986). As rural residents either leave the state or migrate to urban places in Nebraska, they leave behind smaller communities and surrounding areas. With these facts in mind, policy makers in Nebraska need to consider

whether they should help places (communities), people, or both as part of any rural development strategy.

> Advocates of people strategies argue that the needs of rural people can best be met when location factors are isolated from strategies; in other words, place is secondary. Furthermore, they usually argue that solutions focusing on people rather than places are usually cheaper. For example, the cost of keeping a small town alive or creating new opportunities in the town may be many times the cost of relocating individuals. Individual assistance programs, whether they be income maintenance or basic education programs to help the rural poor, need not be much different from programs for the urban poor.
>
> Advocates of place strategies, on the other hand, argue that people should be able to stay where they currently live; thus, efforts to meet human needs must focus on rural communities. Place-oriented advocates also argue that it is more efficient to use existing infrastructure investments in small towns than to relocate people. (Smith 1988)

Programs to assist places would emphasize locally based economic and community development programs. Such initiatives should either enhance community economic competitiveness or enhance community capacity to stabilize or maintain quality of life for residents (DiMartino 1987).

Rural Resource Base. While the analytic results noted earlier show a reasonably strong multiplier effect from the farm sector to the balance of the state economy, the transmission effect is no doubt much stronger for rural areas. A return to depressed farm income levels or a return to episodes of erratic swings in farm income may accelerate the depopulation trend in those counties that are most dependent upon agriculture.

If movements toward property tax relief persist in the state, then special attention might be given to those counties which have high economic vulnerability to farm income changes.

In Nebraska, South Dakota, and many other farm states, such changes have led to farm population losses and, in turn, to declines in the area's resource base (Swanson 1980; Smith 1985).

While state rural development policy should explicitly address the desirability of rural-to-urban migration, it is quite probable that the signals received by Nebraska's farm sector from the national and world economies will swamp any state or local policy actions meant to stem out-migration from the state's most rural areas. As a result, some of the state's counties will continue to see an erosion of their financial resources. Two responses to this

trend warrant consideration. First, if movements toward property tax relief persist in the state, then special attention might be given to those counties which have high economic vulnerability to farm income changes. The counties listed in table 3 are notable in this regard. Another issue which should be considered for those counties most dependent upon farm income is assistance to local government officials in developing new or alternative ways of financing and delivering public services.

Endnotes

1. Personal income is the sum of the following components: wages and salaries; other labor income; proprietor's income; dividends, interest and rent; transfer payments; and a residence adjustment; minus personal contributions for social insurance.

2. A seventh enrollment period was conducted during the summer of 1988. Data on the enrollment activity were not available at the time of this writing.

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SELLING NEBRASKA'S WATER: WATER SALES, TRANSFERS AND EXPORTS

4

J. David Aiken

Historically, western states have been free to prohibit water exports, and most states have done so. This changed abruptly in 1982, when the U.S. Supreme Court in its *Sporhase* decision invalidated Nebraska's groundwater export statute. After *Sporhase*, states could no longer simply prohibit the export of water, so the likelihood that water could be purchased or appropriated for export increased. In 1987 legislation was introduced to aggressively seek interstate buyers for Nebraska water. In the face of stormy opposition, the legislation was successfully recast as a study of water exports and transfers. The water exports study, however, contained the original premise: that selling Nebraska water is inevitable and could be a state financial bonanza. Analysis of the issue indicates it is not clear that selling Nebraska water is in the state's best interests, particularly if the sale proceeds are used to construct new irrigation projects, thus adding to surplus crop production.

Introduction

Traditionally, western states, including Nebraska, have been able to prevent export of their water to other states, reserving it for in-state uses. In 1982 the U.S. Supreme Court, in the landmark decision of *Nebraska v. Sporhase*, invalidated a feature of Nebraska's groundwater export statute which discriminated against out-of-state users. The *Sporhase* decision increased the likelihood for development of increased water exports between states and interstate sale of water rights. Some Nebraskans see the *Sporhase* decision as an economic development opportunity, while others see it as a threat to the state's long-term interests. This issue is complex and controversial, and Nebraska's policy response to the *Sporhase* decision must take both factors into consideration.

This chapter examines Nebraska water policy regarding water transfers and exports as well as the policies of western states in general prior to the *Sporhase* decision. The *Sporhase* decision is examined in some detail, as is water export litigation after *Sporhase*. The Nebraska policy response to *Sporhase* — a preview of the political controversy that will attend water export and transfer legislative debates in 1989 and beyond — is also profiled. Finally, water export and transfer policy alternatives are evaluated.

While the thought of exporting water may strike most Nebraska citizens as outrageous, many small-scale transfers could occur with little adverse

effect on Nebraska. The likelihood of Los Angeles, Phoenix or Denver importing massive amounts of water from Nebraska is remote, at least within the foreseeable future. If water exports occur they will most likely involve small quantities moved over short distances.

Making water rights marketable will not signal the end of irrigated agriculture in Nebraska; in fact it may provide new opportunities to resolve a variety of water conflicts.

The notion of buying and selling water rights has always aroused controversy in Nebraska, raising the specter of cities and industries drying up the irrigated areas of the state. But, in fact, allowing water rights to be purchased would broaden the water management options available to Nebraska resource managers, and could even result in enhanced protection of fish and wildlife. Even if municipal and industrial uses were *doubled* in Nebraska, the water could be supplied with about ten percent of the water currently used in irrigation. Making water rights marketable will not signal the end of irrigated agriculture in Nebraska; in fact it may provide new opportunities to resolve a variety of water conflicts.

In considering water export policy alternatives, one must realize that the *Sporhase* decision does not represent the last word on water exports law. That legal issue will continue to be developed through additional state legislation and litigation. There is little need to immediately enact legislation either promoting exports or limiting them to protect Nebraska's interests, but this would send a political signal that Nebraska is friendly or hostile toward exporting its water. Citizens and policy makers must avoid simply concluding that water exports and transfers are either terrible or the solution to all our problems. The truth lies between these extremes.

Background

While the issue of water exports and transfers appears to have been thrust upon Nebraskans with the *Sporhase* decision, additional factors have contributed to the development of the issue and how it will affect Nebraskans. Nebraska's abundance of groundwater means that the state is a potential source of water for more arid states. Nebraska already has a turbulent history regarding interbasin surface water transfers that may make the issue of interstate water transfers more controversial. Finally, because Nebraska is the only western state that prohibits the sale of irrigation water rights for uses other than irrigation, proposals to sell water rights within

Nebraska and to users in other states will generate strong political resistance.

Water Use and Policy

How water exports and water rights transfers affect Nebraska depends upon the state's current water availability and use. While Nebraska is a semiarid state, its groundwater availability has created unique water laws and policy development and has made the state a potential source of water for other states. Nebraska's water policies have emphasized water development and use rather than resource protection. Policies encouraging water exports would be consistent with this tradition, although export policies have been vigorously opposed by agricultural groups. Policies adopting a resource protection objective would discourage water exports, but they have also been opposed in other contexts by irrigation and water development interests.

Sources and Use

Nebraska is categorized as a semiarid state because the western two-thirds of the state needs supplemental water for row-crop production. About 90 percent of all water used in Nebraska is used for irrigation. Average annual precipitation ranges from thirty-four inches in the southeast corner of Nebraska to sixteen inches in the Panhandle. Nebraska contains thirteen river basins, about 24,000 miles of streams and rivers, and many small dams and farm ponds. Eighteen large reservoirs (each storing at least 25,000 acre-feet of water) collectively store more than three million acre-feet of water, principally for irrigation. Of the estimated seven million acres irrigated in Nebraska, approximately one million are irrigated with surface water. Surface water is the major source of water for power production, supplying all the water for hydropower generation and sixty-five percent of the water used for power plant cooling. Surface water is less important for other water uses and only provides water for approximately twenty-two percent of all municipal use, seventeen percent of rural domestic and livestock use, and

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twenty-seven percent of irrigation. Surface water is also used for fish and wildlife habitat and recreation.

Groundwater is Nebraska's hidden treasure. Nearly three billion acre-feet of groundwater underlie Nebraska; more than is found in any other state and 1,000 times the amount of water in Nebraska's large reservoirs. However, groundwater recharge rates are very low and depend on rainfall. In Nebraska, recharge rates range from less than one inch per surface acre annually in regions with heavy, tighter soils to three inches per surface acre annually in regions with lighter, sandy soils. The three billion acre-feet of groundwater represent thousands of years of recharge from rainfall. Groundwater is widely available in Nebraska: Irrigation wells are located in every county and reliable domestic wells exist in every part of the state.

At the same time, groundwater depletion is occurring in several parts of the state, notably in the Blue River Basin, Central Platte River Basin, and Republican River Basin, all intensively irrigated areas that rely on groundwater. Groundwater pollution is a recent problem, with nitrates and other agricultural chemicals being detected in most irrigated areas of the state (Exner and Spalding 1987). Groundwater accounts for seventy-eight percent of all municipal water use, eighty-three percent of rural domestic and livestock use, all self-supplied industrial uses, and seventy-three percent of irrigation use. Groundwater also supports the flow of many Nebraska streams and lakes during dry periods.

Many Nebraskans, particularly farmers, think of Nebraska as being a relatively dry state because of its recurring droughts and low precipitation. In fact the state is water rich, particularly compared to other western states. Nebraska has streamflow, particularly from the Sandhills, that would make any other western state envious. Groundwater, however, accounts for most of the water for virtually every water use. Nebraska's groundwater resources are without parallel in the United States, both in quantity and quality. This underground treasure represents an abundant resource for instate use, a resource most citizens believe should be carefully guarded against potential exploitation by out-of-state users.

Surface Water Laws and Issues. Nebraska is one of the seventeen arid and semiarid western states to adopt statutory laws governing the use of surface water. In Nebraska, appropriation permits (water rights) must be obtained from the Nebraska Department of Water Resources (DWR) to secure the legal right to divert water from a lake or stream. Similar permits must be obtained to construct and to operate surface water reservoirs.

These surface water appropriations are administered by the DWR on the basis that "first in time is first in right." This means that when water is insufficient to supply the needs of all appropriators, those with the most recent priority dates (those who acquired their appropriations most recently)

The protection of environmental water uses (such as for fish and wildlife) and the funding of new surface water development projects are the most visible surface water policy issues facing Nebraskans.

must stop withdrawing water until the needs of senior appropriators have been satisfied. The DWR issues closing orders to junior appropriators virtually every irrigation season.

The prior appropriation doctrine protects the rights of first users at the expense of later users. The most senior water rights represent the most secure water supply. This so-called *rule of priority* is an essential feature of the appropriation doctrine, applied by all western states to surface water and by most western states (excluding Nebraska) to groundwater.

The protection of environmental water uses (such as for fish and wildlife) and the funding of new surface water development projects are the most visible surface water policy issues facing Nebraskans. Traditionally, Nebraska surface water laws have not recognized instream flows (water rights to leave water in a stream for fish and wildlife protection rather than to divert the water from the stream for irrigation) as a legally protected water use. Controversial legislation authorizing instream flow appropriations for fish and wildlife protection was finally enacted in 1984, but only after a bitter fight between environmental and irrigation interests (Aiken 1987). Further irrigation-environmental disputes have prevented instream appropriations from being granted.

Instream flows for fish and wildlife purposes often conflict with new irrigation projects. Federal funding for those projects has diminished substantially, raising the possibility that any major water projects in Nebraska will have to depend on state financing. This would constitute a major water policy change, requiring both a constitutional amendment to allow the state to incur debt to finance water projects and a political consensus that new water projects are needed and can be developed without disrupting the environment.

Interbasin Transfers. Interbasin water transfers represent a specific area of Nebraska's surface water laws and policies, especially water exports and water-right sales. Nebraska water right statutes were interpreted by the Nebraska Supreme Court in 1936 as prohibiting the transfer of water from one river basin to another (Osterman v. Central Nebraska Public Power &

Irrigation District, 131 Neb. 356, 268 N.W. 334 [1936]). This decision thwarted the desires of irrigators in the Blue and Republican river basins to divert water from the Platte River. The legislative representatives from regions south of the Platte River made several unsuccessful attempts to overrule the *Osterman* decision through legislation authorizing transbasin diversions. These transbasin diversion proposals were the major theme of several legislative sessions, from 1943 to 1953, producing bitter and divisive political battles, as the regions north of the Platte River opposed transbasin diversion and the regions to the south supported it (Oeltjen and others 1971).

The *Osterman* decision was overruled in the 1980 *Little Blue I* decision when the Nebraska Supreme Court reinterpreted Nebraska appropriation statutes as authorizing, not prohibiting, interbasin surface water transfers. *Little Blue I* triggered a race for Platte River water rights that is still occurring: Platte valley irrigation interests battle promoters of irrigation projects in the Republican and Blue river valleys and environmentalists who want to protect Platte River flows for fish and wildlife (Aiken 1987).

Nebraska's surface water policies may fairly be characterized as development oriented. Appropriation statutes were adopted in 1895 to legally encourage irrigation development. Those statutes have been little changed since their original adoption, although public attitudes toward resource use and environmental protection have changed dramatically. Water wars pitting irrigators against environmentalists dominate the surface water policy agenda. Nebraska surface water policies encourage resource use rather than resource protection, an attitude Nebraskans may have to change if they wish to protect Nebraska water resources from exportation to other states.

Groundwater Laws and Issues. As indicated, groundwater is the major source of water in Nebraska and supplies most water uses except for power production. Nebraska does not apply the doctrine of prior appropriation to groundwater; it relies instead on the courts to resolve groundwater disputes between landowners. While this common law approach falls short of comprehensive management of a vital public resource, it mirrors the experience of other western states with extensive groundwater supplies: California, Arizona, and Texas. In all other states, groundwater supplies are so limited that legislation is required to settle frequent groundwater disputes, just as appropriation statutes are required to handle the recurring disputes over surface water use.

Groundwater supplies are being depleted in several areas of Nebraska, including the Blue River basin, the Central Platte River basin, the Republican River basin, and the Alliance and O'Neill areas. Groundwater withdrawals may be reducing streamflow in the Republican River basin and may reduce Platte River flow during the irrigation season. Also, groundwater

Nebraska groundwater policy is virtually a blank slate. An unusual abundance of groundwater has given Nebraska policymakers the luxury of avoiding difficult political decisions to protect this critical public resource.

pollution from the use of agricultural chemicals is occurring throughout the irrigated areas of the state and may ultimately extend to the streams such groundwater feeds. But, legislation giving local natural resource districts the option of establishing regulations to control groundwater depletion and pollution from agricultural water uses generally has not led to groundwater controls. New groundwater quality legislation giving the Nebraska Department of Environmental Control authority to establish special groundwater quality protection areas is at least a year from being implemented and several years from being implemented statewide (Exner and Spaulding 1987). No policies exist for working with surface/groundwater conflicts, although concerns regarding how further diversions from the Platte River will affect Platte valley municipal well fields are a significant element of the current Platte River water war.

Nebraska groundwater policy is virtually a blank slate. An unusual abundance of groundwater has given Nebraska policymakers the luxury of avoiding difficult political decisions to protect this critical public resource. Nebraska groundwater policies are even less well-developed than Nebraska surface water policies, and they are geared less to resource protection than to resource development and use. Nebraskans will have to adopt new political attitudes emphasizing resource protection rather than resource development and use if they are to protect Nebraska water from export to other states. Alternatively, the extension of Nebraska's traditional attitudes of encouraging water development and use at the expense of resource protection is consistent with policies encouraging the export of Nebraska water to other states. This possibility has already been opposed by irrigation groups, which have sought to maintain the instate development orientation in Nebraska water policies.

Water Transfers and Exports

To understand the legal and political dimensions of the *Sporhase* decision, an understanding of water transfers and water export policies is needed. Western states, including Nebraska, have traditionally restricted

water exports pursuant to U.S. Supreme Court decisions authorizing water embargoes. Most western states, excluding Nebraska, have allowed the buying and selling of water rights principally to allow municipalities and industries to obtain needed water supplies from irrigators. The *Sporhase* decision has forced western states, including Nebraska, to modify their water export restrictions. The *Sporhase* decision may also force Nebraska to modify its policies regarding water right transfers.

Water transfers refer to instate interbasin transfers of surface water and instate transfers of groundwater. An interbasin surface water transfer is a transfer from one of Nebraska's thirteen river basins to another. The movement of surface water within a river basin is not legally considered to be a transfer, whereas an interbasin transfer is legally subject to additional requirements and conditions before approval of such a transfer is given.

What legally constitutes a transfer of groundwater is not clear under Nebraska law. The most narrow possibility is that any groundwater pumped off the tract of land from which the water was withdrawn is considered a transfer. The broadest possibility is that all the land overlying a groundwater basin or aquifer is considered overlying land, which would allow groundwater to be transferred over large areas. Neither Nebraska statutes nor Nebraska Supreme Court decisions address this issue, although groundwater transfers for municipal, rural domestic, and industrial purposes are authorized if a Department of Water Resources permit has been obtained. Thus, irrigation is the only major use for which groundwater transfers is not defined.

Water exports refer to the transfer of surface or groundwater out of Nebraska. Water right transfers refer to the sale of water rights from one user to another. In the typical transaction a municipality or industry purchases the water rights of an irrigator and uses the water formerly used by the irrigator for municipal or industrial purposes. The seller loses the right to continue water use, while the buyer obtains the right to use water with the seller's relatively senior priority date. Water rights are typically purchased when there is little or no unappropriated water available for new municipal or industrial uses. Water right transfers may be instate water right sales or interstate (that is, export) water right sales.

The distinction between water transfers, water exports, and water right sales is important because the *Sporhase* decision may be interpreted as requiring the same rules for each type of activity, whether instate or interstate. Currently, a state is likely to have different legal rules governing water transfers, water exports, and water right sales. Occasionally the term *water transfers* will be used to refer collectively to instate water transfers, water exports, and water right sales.

Western Water Export Policies. Western states generally have restricted or prohibited water exports in order to reserve water for instate uses.

Common restrictions have included: requiring legislative approval before an export water right could be granted; requiring that the state seeking to import water reciprocally authorize the export of its water into other states; or flatly prohibiting exports. These legislative restrictions made the movement of water between states difficult to accomplish.

Resolution of Interstate Water Use Conflicts. While western states traditionally have discouraged water exports, interstate water use conflicts have nonetheless arisen. The typical dispute involves the diversion of water in an upstream state, which reduces streamflow into a downstream state. Such conflicts have been resolved either through interstate compacts, where states negotiate water use agreements, or through litigation, where the U.S. Supreme Court equitably apportions the disputed water between states.

Coal Slurry Pipeline. A new element in interstate water use arose in the late 1970s when South Dakota announced a plan to sell 20,000 acre-feet of water from federal Missouri River reservoirs to the Energy Transportation Systems, Inc., (ETSI) coal slurry pipeline company. ETSI proposed to grind Wyoming coal into dust, combine the coal dust with South Dakota water, and pipe the resulting coal slurry to electric utilities in Arkansas. South Dakota received $2 million for the initial water appropriation, with subsequent annual payments of $3 million until major pipeline construction began, at which time payments would increase to $12 million per year. The money received from ETSI would be used to fund water development projects in South Dakota, including rural water system development. The coal slurry pipeline project was abandoned when delays resulting from lawsuits filed by downstream states, including Nebraska, made the project impractical. The ETSI case was ultimately decided by the U.S. Supreme Court in 1988, the court ruling that ETSI had sought water use permits from the wrong federal agency.

In analyzing the water sale agreement between South Dakota and ETSI, one fact becomes clear: South Dakota was selling ETSI more than just water; it was also selling its political support for the coal slurry pipeline

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The millions of dollars South Dakota would have received for selling water, had the pipeline been constructed, led some in Nebraska to perceive selling water as a financial opportunity, particularly to fund water project development.

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project. While ETSI needed state water rights to withdraw water from the federal Oahe Reservoir for the pipeline, it also needed federal approval. However, states generally do not require cash payments as a condition for issuing new water rights. The cash payments made to South Dakota represented compensation for state political support of a controversial water-use project.

The coal slurry pipeline proposal raised many legal and policy issues regarding interstate water uses, most of which remain unanswered. Significantly, the millions of dollars South Dakota would have received for selling water, had the pipeline been constructed, led some in Nebraska to perceive selling water as a financial opportunity, particularly to fund water project development.

Nebraska Water Export Policies. Prior to the 1981 *Sporhase* decision, Nebraska statutes required legislative approval for surface water exports and reciprocity for groundwater exports. Reciprocity means that the state that would receive Nebraska groundwater would be required to authorize the export of its groundwater into Nebraska. Nebraska prohibited instate interbasin transfers of surface water for any purpose prior to the 1980 *Little Blue I* decision, authorized instate groundwater transfers only for municipal purposes, and did not authorize water right sales. Thus Nebraska law prior to *Sporhase* was very restrictive regarding the movement of water instate and interstate.

Water Right Transfers

The second major legal issue raised by *Sporhase* is water right transfers, or the buying and selling of water rights. In virtually every western state any entity may purchase water rights and change both the location and the purpose of water use. This means the seller is selling the right to use water. Most water right sales are from irrigators to industries or municipalities. Industries and municipalities are interested in purchasing irrigation appropriations because water supplies have been fully appropriated (that is, there is no water left for allocation to new water users). And even if the industry or municipality acquired a new appropriation, it would be the first junior appropriator issued a closing order when streamflow (or groundwater supplies) could not meet all appropriative needs. Therefore, industries or municipalities that need water purchase rights from irrigators and convert those water rights to municipal or industrial uses in different locations. Typically, irrigation water rights are purchased because more irrigation rights are available for purchase than any other kind. Also, the appropriations with the earliest priority dates tend to be irrigation rights, and

appropriations with early priority dates are the most valuable because they represent the most secure water supply.

Effect on Irrigation. Water rights transfers are controversial among irrigators, because irrigation water sales result in irrigation (and irrigators) being displaced by municipal and industrial water uses. Farmers and ranchers see their industry being diminished to satisfy the water needs of municipalities and industries. This concern is probably misplaced, because even if western municipal and industrial water uses doubled, only about ten percent of western irrigation water rights would need to be transferred to them. Thus, although massive purchases of water rights by municipalities and industries could significantly affect irrigation, they would not displace irrigated agriculture.

Return Flows. Water rights transfers are also controversial because of the return flows issue. When water is diverted for irrigation, less than half the amount diverted is actually consumed in crop production. The remaining water returns to the stream or groundwater aquifer as return flows and is available for reuse by other irrigators and water users. When irrigation water rights are sold, only the amount of water that has been consumed in irrigation can be transferred to the new use; the return flows must be maintained. However, local irrigators and the municipality or industry proposing to purchase the irrigation water rights usually disagree about the quantity of return flows, with the irrigators claiming higher return flows and the water rights purchasers claiming higher water consumption and lower return flows. Resolving this issue in water right transfer administrative proceedings is expensive (lawyers and engineers must be employed), time consuming, and controversial. Nonetheless, water rights sales are an efficient method for reallocating limited water supplies as economic conditions change.

Water Exchanges. The purchase of irrigation water rights by a municipality or industry needing additional water supplies is the typical water rights transfer setting. Another example is a water exchange, where water in one location is substituted for water in another location. For example, a municipality may construct a storage reservoir and then trade the water stored for water controlled by an irrigation district in another location. The municipality is, in effect, trading new stored water for the old irrigation water. Such water exchanges sometimes allow water to be acquired at a lower cost than would otherwise be possible.

Water Marketing. An emerging aspect of water rights transfers is water marketing. Reservoirs are expensive to build and are often controversial because of their adverse environmental impacts. Some suggest that purchas-

ing water rights allows new water uses to be accommodated at a lower cost than would be possible with reservoir construction, and does so with virtually no adverse environmental impact. Those promoting water marketing seek to make the process for buying or leasing water rights more expeditious to facilitate these market transfers.

Western State Water Rights Transfer Policies. Virtually all western states authorize the sale of water rights. Several western states are taking additional steps to make water rights transfers easier through water marketing programs. This is particularly true in states that are experiencing urban or industrial growth. Water marketing programs include: establishing a state clearinghouse for water rights sales to provide potential water rights buyers and sellers an opportunity to obtain information regarding water rights sales; adopting new procedures to streamline the water rights transfer process; and streamlining the sale of water rights from state and federal irrigation projects. A new type of professional, the water broker, has emerged as one who can assist municipalities and industries in buying water rights.

Nebraska Water Rights Transfer Policies. Traditionally, Nebraska has been one of the few western states that does not allow water rights to be transferred. If a municipality or industry needs a secure water supply, it can usually obtain one through a well or well field in most areas of Nebraska with little difficulty and relatively low cost. Thus, although most streams are overappropriated, abundant groundwater supplies have made it unnecessary to reallocate water rights through market transfers to accommodate new municipal and industrial uses.

In 1983, the longstanding prohibition against selling water rights was modified to allow surface-water appropriations to be sold for use within the same river basin and for the same purpose as the original appropriation. But, although water rights transfers are allowed, prohibiting the purchase of irrigation water rights for municipal or industrial purposes severely restricts the water rights market in Nebraska.

Summary. Nebraska's pre-*Sporhase* water export policies were similar to those of other states in making water exports difficult to accomplish. Nebraska's water rights transfer policies differ from those of other western states in that Nebraska statutes do not allow the buying and selling of water rights except within the same river basin, for the same use. This restrictive policy has not hampered economic development in Nebraska, as ample groundwater supplies are generally available throughout the state to supply new municipal or industrial uses. Other western states do not have this luxury, and therefore must allow municipalities or industries to purchase water rights from irrigators in order to obtain water needed for economic

development and population growth. Water right transfers reduce the quantity of water used in irrigation, reducing potential agricultural production. Administrative proceedings for approving water rights transfers are often expensive and controversial, as irrigators and water rights buyers dispute the effect of the proposed change in use on return flows.

The *Sporhase* decision has forced western states, including Nebraska, to modify restrictive policies on water exports. Because water export is a politically sensitive issue, this effect of *Sporhase* has been controversial in the West. The impact of *Sporhase* on water rights transfers also means that in states where water rights can be transferred, those water rights can now be purchased for use out of state. In Nebraska, where water rights transfers are tightly restricted, more liberal water rights transfer policies could lead to Nebraska surface water rights being purchased for out-of-state use.

The Sporhase Decision

The *Sporhase* decision began simply, although its results would revolutionize western water law and politics. Mr. Sporhase owned a farm straddling the Nebraska-Colorado border in southwestern Nebraska and used a well located in Nebraska to irrigate his land in both states. Legally, Sporhase was required to obtain a permit from the Nebraska Department of Water Resources to import Nebraska groundwater into Colorado. Sporhase did not seek a groundwater export permit, however, because he knew the permit would be denied on the grounds of reciprocity: the Nebraska statute required that Colorado allow groundwater exports from Colorado to Nebraska, and Colorado statutes explicitly prohibited all water exports.

The Sporhase *decision began simply, although its results would revolutionize western water law and politics.*

The state of Nebraska sued Sporhase for failing to obtain a groundwater export permit. Sporhase argued that the reciprocity provision of the export statute violated the commerce clause of the U.S. Constitution. Under the commerce clause, courts may invalidate state legislation restricting interstate commerce unless the restriction is only incidental to accomplishing a legitimate local purpose. The state of Nebraska argued that the export statute was constitutional. The Nebraska Supreme Court ruled in 1981 that groundwater was publicly owned, that groundwater was not an article of commerce because it could not be transferred freely, and therefore groundwater was not subject to the commerce clause. The court also ruled

that Sporhase could not continue to export water into Colorado without a state permit, in effect requiring Sporhase to stop his interstate irrigation until Colorado adopted a reciprocity provision. Chief Justice Krivosha dissented on the basis that the reciprocity requirement did violate the commerce clause.

U.S. Supreme Court Decision

The U.S. Supreme Court reversed the Nebraska Supreme Court decision in 1982, reversing earlier decisions of its own that water export bans were constitutional as well (Nebraska ex rel Douglas v. Sporhase, 458 U.S. at 941 [1982]). In prior decisions, the U.S. Supreme Court had ruled that state water export bans did not violate the commerce clause, but this rule was discarded in *Sporhase* as being inconsistent with more recent court interpretations of the commerce clause. The court ruled instead that water was an article of commerce, and therefore any export prohibitions were subject to the commerce clause.

The U.S. Supreme Court indicated the legal test it would use to determine whether a state statute restricting interstate commerce was constitutionally valid was as follows:

> Where the statute regulates evenhandedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits. If a legitimate local purpose is found, then the question becomes one of degree. And the extent of the burden that will be tolerated will of course depend on the nature of the local interest involved, and on whether it could be promoted with a lesser impact on interstate activities (458 U.S. at 954 [1982]).

Thus, some regulation of water exports is legally permissible, but the regulation must be for a legitimate local public purpose and the effects on interstate commerce must be only incidental.

The court then suggested some circumstances in which export restrictions might be valid. First, the court recognized that states may regulate the use of water in times and places of water shortage to protect public health. Second, the court suggested that the public ownership of groundwater in Nebraska may support a limited water use preference for its citizens. Unfortunately, the court did not expand on this limited instate preference, so its meaning is unclear. Finally, the court stated that citizens' use of water saved through regulatory efforts (for example, to control groundwater depletion) may be preferred during times of shortage. The court stated that three parts of Nebraska's export statutes met these standards. These requirements were that the proposed export of groundwater was reasonable, not contrary to the conservation and use of groundwater, and not otherwise detrimental to the public welfare.

However, the U.S. Supreme Court ruled that while some restrictions on exports might be consistent with the commerce clause, the Nebraska reciprocity requirement could not be justified legally unless Nebraska could demonstrate that: (1) the state as a whole suffered a water shortage; (2) instate water transfers from areas of abundance to areas of shortage were feasible without regard to distance; and (3) water imports from adjoining states would compensate for water exports to those states. Nebraska made no attempt to argue that this was the case, and therefore the reciprocity clause was invalidated.

The court further suggested that an arid state might be able to legally justify a ban on all exports if it could demonstrate that all water resources were needed for instate use, although the court also declared that states cannot practice economic protectionism in making water allocation decisions. Finally, the court determined that any restrictions a state imposes on instate water uses may also be extended to water exports, such as controls to prevent groundwater depletion.

Justices Rehnquist and O'Connor dissented on the basis that Nebraska law does not allow transfer of groundwater to adjoining land for irrigation purposes, and, therefore, that the reciprocity clause did not result in different treatment of export uses and instate uses in this case. However, that was an incorrect legal premise. While Nebraska court decisions on this point are not clear, the Upper Republican Natural Resources District, within which Sporhase's well was located, did and continues to allow irrigation transfers to adjoining land with NRD approval as part of its local groundwater control regulations.

After the *Sporhase* decision, the Nebraska Supreme Court ruled that the remainder of the export permit statute was still in force, although the reciprocity provision had been invalidated by the U.S. Supreme Court. Mr. Sporhase obtained a groundwater export permit from the Nebraska Department of Water Resources and is irrigating his Colorado field from his Nebraska well.

In response to *Sporhase*, the Nebraska Unicameral in 1984 amended the export statute to require the DWR director to consider in each export case:

- Whether the proposed groundwater export is a beneficial use of groundwater,
- The alternative surface or groundwater supplies available to the applicant,
- Any negative impacts of the export on local surface or groundwater supplies to meet reasonable future local water demands, and
- Any other factors to protect the interest of Nebraska and its citizens.

In addition, the groundwater export must comply with local natural resource district groundwater regulations.

Commentary

The purposes of the commerce clause were best expressed by Justice Robert Jackson in 1949:

> Our system, fostered by the Commerce Clause, is that every farmer and every craftsman shall be encouraged to produce by the certainty that he will have free access to every market in the Nation, that no home embargoes will withhold his exports, and no foreign state will by customs duties or regulations exclude them. Likewise every consumer may look to free competition from every producing area in the Nation to protect him from exploitation by any. Such was the vision of the Founders; such has been the doctrine of this Court which has given it reality (H.P. Hood & Sons Inc. v. DuMond, 336 U.S. 535 [1949]).

The purpose of the commerce clause, then, is to ensure that states do not embargo, unfairly tax, or otherwise discriminate against the products of other states to protect instate producers.

Under a literal reading of Sporhase, *the state could not limit or prohibit the export unless the restrictions or prohibitions applied to similar instate uses, were the result of local water shortages, or fell within the U.S. Supreme Court's undefined "limited instate preference."*

In the water rights context, the commerce clause seems to require states allowing water or water rights to be bought and sold within a state to allow them to be bought and sold across state lines on the same basis. If the *Sporhase* decision were so limited, it would still have a major impact on western water rights but a lesser impact on Nebraska, where water rights generally cannot be transferred. However, the U.S. Supreme Court went beyond this and ruled that when a state is making an initial water allocation (that is, initially granting the water right), it cannot discriminate economically against out-of-state water users. This part of the *Sporhase* decision seems to extend beyond the requirements of a strict reading of the commerce clause.

The principal disadvantage of the *Sporhase* decision is that it gives faster developing states an advantage over slower developing states. For example, a growing city may seek additional water supplies from a neighboring state to

supply an expanding population and economy. Prior to *Sporhase*, the neighboring state could have prohibited or limited the water export, reserving the water for use by its future expanding population and economy. Under a literal reading of *Sporhase*, however, the state could not limit or prohibit the export unless the restrictions or prohibitions applied to similar instate uses, were the result of local water shortages, or fell within the U.S. Supreme Court's undefined "limited instate preference."

The New Mexico Response

The only further court interpretation of the *Sporhase* decision involves efforts of El Paso, Texas, to import water from New Mexico. New Mexico's original water export statute was invalidated on the basis of *Sporhase*, but new export legislation was sustained as meeting the *Sporhase* requirements. New Mexico has gone further than any other state in attempting to comply with the *Sporhase* decision. An examination of the New Mexico experience is worthwhile in evaluating Nebraska's water export policy alternatives.

El Paso I. El Paso determined that it needed additional water supplies to meet the needs of a growing population, and it applied in 1980 for water appropriations to install 326 wells in New Mexico to annually withdraw 296,000 acre-feet of groundwater. The appropriations were initially denied by the New Mexico state engineer, based on New Mexico's statutory groundwater export prohibition. El Paso appealed that decision in federal court, arguing that New Mexico's water export prohibition was unconstitutional.

After the *Sporhase* decision was handed down, the federal district judge ruled in *El Paso I* that the New Mexico water export prohibition statute was unconstitutional, as it interfered with interstate commerce (El Paso v. Reynolds, 563 F.Supp. 379 [1983]). The court noted that while New Mexico had long been engaged in state regulatory efforts to manage and conserve groundwater supplies (regulations much more stringent than those found in Nebraska), that alone was not sufficient to justify the export prohibition. The court ruled that *Sporhase* allowed a state to discriminate in favor of its citizens in water allocation only to the extent necessary to protect human health and safety needs; beyond that, water must be treated as any other natural resource. New Mexico did not argue that its embargo was necessary to protect human health and safety but rather that its purpose was to make maximum beneficial use of the water in New Mexico. Despite the fact that state water officials projected a significant statewide water shortage by 2020, the court noted that the uses contributing to the deficit included industry, irrigation, energy production, fish and wildlife, and recreation, and

determined that water could not be reserved for these purposes beyond the state's health and safety needs.

The court suggested that New Mexico could engage in water planning and that export uses could be regulated on the same basis as instate uses. New Mexico could condition export permits with reporting or other requirements to determine whether the water was being used properly. The court stated that if El Paso violated any permit conditions, New Mexico could revoke the export permits and shut down El Paso's well field.

Among the difficulties with *El Paso I* are the ambiguities inherent in *Sporhase*. Parts of the *Sporhase* decision seem to indicate that states may favor their citizens in water allocation decisions only to protect water uses necessary for human health and safety, but not for economic development. Other passages of *Sporhase*, however, suggest that states may engage in a limited preference for instate water uses; but these passages do not define what this limited preference encompasses. The strictest interpretation of the limited-preferences language was adopted by the *El Paso I* court to mean a preference limited to human health and safety needs but not economic development. However, the limited preference language could also mean a limited preference for instate economic development. Commentators have criticized *El Paso I* for interpreting the limited preference language so narrowly (Trelease 1987; Liepas 1984).

Sporhase at least admits the possibility that a state may economically discriminate in favor of local economic development, so long as that discrimination does not unduly burden interstate commerce. This could include considering the economic benefits to the state of proposed uses and authorizing only those uses resulting in a net state economic benefit. Water exports would have few economic benefits in the exporting state and therefore would be expected to fail such an economic benefits test. The extent of this type of limited preference has not been addressed by the Supreme Court, although the federal district court did acknowledge its existence in *El Paso II*.

SB 295 and the Export Study Commission. After *El Paso I*, the 1983 New Mexico legislature enacted Senate Bill (SB) 295, which incorporated the features of Nebraska's export statutes found permissible in *Sporhase*. Specifically, in considering surface or groundwater export appropriation applications, the New Mexico state engineer could grant the permit only if the proposed export would not:

- Impair existing rights,
- Be contrary to the conservation of water within the state, or
- Be otherwise detrimental to the public welfare of New Mexico citizens.

In making these determinations the state engineer's considerations were specified to include:

- The availability of water in New Mexico,
- Demands for water in New Mexico,
- New Mexico water shortages,
- Whether the water proposed to be exported could be transferred to alleviate shortages in New Mexico,
- Alternative water supplies available to the applicant, and
- The demands placed on the applicant's local water sources.

In 1983, the New Mexico legislature also established a water law study committee to make recommendations regarding water exports law and policy. The committee presented its report to the legislature January 1, 1984. The committee report noted that New Mexico was facing a water shortage, but that surrounding states (Texas, Arizona, Colorado and Oklahoma) were facing much greater water shortages. Thus, New Mexico likely would have to contend with export requests from these states. The committee recommended several alternatives:

- Request federal legislation giving states the legal authority to restrict exports (essentially repealing *Sporhase*),
- Enter into an interstate compact with Texas to apportion New Mexico's groundwater between the two states,
- Study the possibility of New Mexico's appropriating all unappropriated water to itself in order to make the water unavailable for export, or
- Enact a five-year moratorium on groundwater appropriations to study the available supply and provide a basis for better groundwater management.

Based on the study commission's recommendations, another statute was enacted in 1984 establishing a two-year moratorium on groundwater appropriations from the aquifer in which El Paso was interested. The moratorium would provide time to develop additional information regarding the groundwater supplies, thus permitting a better evaluation of the impact of the proposed export appropriations.

El Paso II. El Paso challenged the constitutionality of the revised New Mexico groundwater export statute and moratorium statute in federal court. In *El Paso II*, the court ruled that the state engineer's consideration of the welfare of New Mexico's citizens in evaluating water exports was not inherently discriminatory (El Paso v. Reynolds, 597 F.Supp. 694 [1984]).

Citing *Sporhase*, the court declared that states could not limit exports merely to protect local economic interests, although the health of a state's economy has a direct bearing on its public welfare. However, the court further stated that in *Sporhase* the U.S. Supreme Court did not equate health and safety requirements with the public welfare. This suggests that there may be some latitude to protect instate water uses other than simply protecting public health and safety on the one hand and blatant discrimination in favor of local economic water uses on the other.

The court also suggested that a state need not wait until water shortages have occurred to begin conservation efforts. An export statute could take potential shortages into account and be constitutional. The real test would be whether the administrative application of that statute by the state engineer was constitutional.

Perhaps the most significant aspect of El Paso II *is that the court recognized that a state's limited preference for instate uses could extend beyond health and safety considerations.*

The court then considered the groundwater appropriation moratorium and concluded that it applied only to the groundwater basins for which El Paso was seeking export appropriations. The court also concluded that the purpose of the moratorium was to block those export appropriations rather than to gather information to improve groundwater administration. Accordingly, the court invalidated the moratorium as interfering with interstate commerce.

Perhaps the most significant aspect of *El Paso II* is that the court recognized that a state's limited preference for instate uses could extend beyond health and safety considerations. The court did not recognize this in *El Paso I*. *El Paso II* also warns that actions taken to prevent water from being exported will be closely scrutinized to determine whether they comply with *Sporhase*, and will be invalidated if they have no justification other than protectionism.

After *El Paso II*, the New Mexico state engineer considered the El Paso export appropriation application. On December 28, 1987, the state engineer denied the application on the basis that El Paso did not have a need for the water within the next forty years. El Paso has appealed this ruling to federal court, where the case is now pending.

The Nebraska Response

The immediate reaction in Nebraska to the 1982 *Sporhase* decision was to modify the groundwater export statutes to give the director of the Department of Water Resources greater discretion in making groundwater export permit decisions. A more controversial response came in the 1987 legislative session, when two bills were introduced to study water exports and to authorize the state to encourage water transfers, water rights transfers, and water exports. These bills were controversial and were opposed by agricultural and environmental groups alike. As a compromise, the export study provisions were enacted and the more controversial water transfer and sale provisions dropped. The water transfers study will propose legislation to the 1989 Unicameral on how best to implement the more controversial features of the original water transfer and sale bill.

LB 146 and LB 151. In 1987, two water transfer and exports bills were sponsored by Senator Loran Schmit, chairman of the Unicameral's Committee on Natural Resources and leading water resources senator in the Unicameral. The first bill, Legislative Bill (LB) 146, would have:

- Directed the Nebraska Water Management Board, an interagency board responsible for reviewing and promoting large water projects in Nebraska, to identify and pursue water projects involving instate water transfers, water exports, instate water rights sales, and export water rights sales.
- Directed the board to prepare a study of water sales, water rights transfers, interbasin transfers, and exports for legislative consideration. The study was to:

  - Identify potential sources of water and water rights for transfer and export;
  - Identify potential buyers and markets for Nebraska's water; and
  - Suggest alternatives for handling damages resulting from water sales, interbasin transfers, water rights transfers, and exports.

- Made surface water rights freely transferable between river basins and among uses, including instream uses. (Currently surface water appropriations may not be transferred between river basins or among different uses.)
- Repealed the requirement of legislative approval for surface water export appropriations and replaced it with considerations similar to those added to the groundwater export statute. Surface water export

appropriations would have been required to have a net positive impact on Nebraska before the export permit could be issued.
- Explicitly limited surface water interbasin transfers, groundwater municipal transfers, and groundwater industrial transfers to instate transfers, thus requiring anyone wishing to export water under these statutes to obtain an export permit.

LB 151, the second bill introduced during 1987, was similar to LB 146 in:

- Authorizing a water exports and transfers study;
- Making surface water rights freely transferable; and
- Restricting surface water exports, interbasin transfers, groundwater municipal transfers, and groundwater industrial transfers to instate transfers only.

However, LB 151 went further than LB 146 in giving the Water Management Board responsibility for promoting water exports. LB 151 would have authorized the board to find buyers for Nebraska's water, construct water export projects, and use the profits from export water sales to construct new water projects in Nebraska. LB 151 also authorized instate groundwater transfers for any purpose, greatly expanding instate groundwater transfer authorities. However, the quantity of groundwater that could be transferred could not exceed current withdrawals from an existing well or net annual recharge for withdrawals from new wells, both of which would have severely limited groundwater transfers. Finally, half of the proceeds received by Nebraska landowners from private groundwater exports would be paid to the state to help construct water projects.

Water Export Policy Assumptions. LB 146 and LB 151 were based on two premises: That *Sporhase* requires states to treat instate water uses and exports exactly the same, and that Nebraska, having abundant groundwater supplies, should sell some of its surplus water to further water resource development within the state. While neither premise is unreasonable, they both can be challenged. First, *Sporhase* allows states to establish a limited preference for instate water uses, although the limits of that preference have yet to be defined. This contradicts the notion that whatever applies to exports must apply equally to instate uses. Thus, the challenge is not simply to come up with instate policies that will accomplish water export policy objectives — although that is a critical part of any water export strategy. The challenge is to test the *Sporhase* decision by creatively defining in statutes and administrative practice a limited instate preference that protects important local values and purposes — economic and noneconomic alike — that do not impermissibly intrude upon interstate commerce. While this is no easy

task, it is a choice which should not be simply dismissed, as it was in LB 146 and LB 151.

The second premise, that Nebraska has surplus water which should be sold to facilitate water resource development, is even more controversial. The definition of surplus is subjective and depends entirely upon the values one wishes to protect. For example, if one wishes to protect wet meadows in the Sandhills or to maintain streamflows in the Loup River system, there is little surplus groundwater in Nebraska. If, however, providing clean drinking water to residents of the Southwest is considered first, the protection of the wet meadows in the Sandhills to maintain a ranching economy and way of life has lower political priority, and there is surplus water in Nebraska.

LB 146 and LB 151 were based on two premises: That Sporhase *requires states to treat instate water uses and exports exactly the same, and that Nebraska, having abundant groundwater supplies, should sell some of its surplus water to further water resource development within the state. While neither premise is unreasonable, they both can be challenged.*

Even assuming that, for the sake of argument, there is surplus water available in Nebraska, selling it to construct water resource projects to increase or maintain irrigation is questionable. Since World War II, one of the major farm policy issues has been coping with grain surpluses. While there have been brief periods of low grain stocks and high world grain prices, the last three decades have been characterized by surplus grain. This has led to federal programs to pay farmers not to plant grain, which has been an important factor in reduced federal spending for water projects: it does not pay to increase irrigation of surplus crops, especially when the producers of those crops are then entitled to federal crop subsidies. The double-subsidy aspect of federal water projects — using irrigation water subsidized by federal taxpayers to grow surplus crops for which the taxpayers must pay again — has helped critics of the federal reclamation program curtail program funding.

To suggest, then, that Nebraska should sell its water so that it can build water projects to produce additional crop surpluses ignores economic reality. Improved production techniques in South America and Asia have allowed other countries to produce grain at least as cheaply as it can be produced in

Nebraska. And biotechnology holds the further promise of increased yields without irrigation. Thus, a policy based on selling water to increase surplus crop production is short sighted and may lead to the economic demise of those it seeks to help.

If Nebraska decides to export its water for money, developing new irrigation projects is not the only potential use of this new state revenue and is clearly not the most desirable use.

The use of state proceeds from water exports is an important decision which deserves wide debate. Groundwater quality protection, soil conservation, and instream flows protection are simply a beginning in terms of important natural resources programs that deserve increased state funding. Other alternative uses of state revenues from water exports are: education, economic development, and transportation improvements. The point is that if Nebraska decides to export its water for money, developing new irrigation projects is not the only potential use of this new state revenue and is clearly not the most desirable use.

In summary, LB 146 and LB 151 are based on the mistaken premise that water exports and water right exports are inevitable and therefore the state should attempt to take financial advantage of the situation. While Nebraska does need to evaluate policy options carefully relative to *Sporhase*, it must evaluate all possible options, not simply those that lend themselves to increased water development.

Political Response. Both LB 146 and LB 151 contain several controversial and emotionally charged issues: that the state should aggressively sell its water, that water rights should be freely transferable, and that interbasin groundwater transfers should be authorized. Each issue alone would generate significant political controversy; the combination of all three issues in any single bill would make it politically impossible to enact. This was borne out in the public hearings on LB 146 and LB 151.

The hearings demonstrated that people generally did not comprehend all aspects of the proposed bills, and in any event there was little political support for enacting the bills into law. Interested groups, including the Nebraska Farm Bureau, the Nebraska Farmers Union and the Nebraska Sierra Club, generally voiced support for only the study provisions of LB 146 and opposed the more aggressive water export promotion of LB 151. After

the hearings, the Natural Resources Committee approved only the water export study provisions and removed all other provisions from LB 146. Provisions removing the requirement for legislative approval for surface water exports were added to LB 146 by amendment and the bill was enacted into law.

Studying Water Exports and Transfers in Nebraska

As finally enacted, LB 146 recited legislative findings that surface water and groundwater were being transferred from the land where they occurred to users within and outside of Nebraska, and that such transfers were likely to increase as water shortages occurred within and outside of Nebraska. The legislature also found that Nebraska enjoyed generally abundant water supplies and a chronic overabundance in some areas. Finally, the legislature declared that state government should provide an orderly mechanism for transferring water from areas of surplus to areas of shortage, to provide for compensating individual landowners and the public for such transfers, and to balance the rights of individual landowners and the public against the free market forces that compel the use of water where it brings the greatest economic return.

LB 146 then directed the Water Management Board to prepare a study which would:

- Analyze current legal, statutory, physical, social, environmental and economic impediments to surface and groundwater transfers;
- Develop a statutory framework to permit water transfers while protecting the environment and the rights of landowners and the public;
- Develop a statutory framework to compensate those harmed by water transfers and also the state of Nebraska on behalf of the general public;
- Identify potential users and markets for water exports, transfers, and water right sales;
- Identify economically feasible water transfer and export opportunities; and
- Identify an appropriate state role in facilitating and regulating water right transfers and exports.

The report was presented to the legislature and governor November 30, 1988. A draft report was made available July 15, 1988, and the public comment period ended August 30, 1988.

The final version of LB 146 as adopted by the Unicameral contained the same limiting assumptions that were in its original version: that water

The LB 146 study does not evaluate the entire range of legal and political options available to respond to the Sporhase *decision, but rather only a subset of those options which are favorable to water development.*

exports and transfers are inevitable and Nebraska should try to take advantage of the situation. The LB 146-mandated study was not required to include either an evaluation of *Sporhase* or a definition of the legal limits of the *Sporhase* decision, and in fact makes the same simplifying assumption. Thus the LB 146 study was not intended to evaluate the entire range of legal and political options available to respond to the *Sporhase* decision, but rather only a subset of those options favorable to water development.

Despite the limitations imposed by the legislature, the Water Management Board study provides a careful analysis of potential water transfers and exports and their impacts on Nebraska. The July 15, 1988, draft report included five proposed bills to meet the requirements of LB 146. The topics addressed by the five proposed bills are as follows (see table 1 for a comparison of these bills with current water laws, and with additional policy options discussed in the concluding section of the chapter):

- Water transfer regulations,
- Rights to saved water,
- Water use fees,
- State water transfer promotion, and
- State water transfer projects.

Each bill, if introduced, will be highly controversial.

Water Transfers Regulation

If enacted, the first draft bill would represent a major departure from past water legislation in Nebraska. The bill would authorize water rights transfers and establish uniform rules for both surface and groundwater exports and instate transfers. The bill would define for the first time in Nebraska what constitutes a transfer of groundwater and would require permits for groundwater transfers away from the section within which the well is located. However, permits would not be required for groundwater used solely for domestic (household, not including livestock watering) purposes or for the

Table 1 - Effect of Water Management Board-Proposed Bills on Nebraska's Water Policies

	Surface Water Right Sales	Water Exports	Instate Interbasin Groundwater Transfers	Instate Interbasin Surface Water Transfers
Current Policy	Can be sold for same purpose within same river basin.	Surface water and groundwater can be exported with DWR permit, permits may be denied in public interest.	Allowed for municipal and industrial purposes only with DWR permit.	Allow for any purpose with DWR permit if state benefits outweigh state environmental and economic costs.
WMB Proposal	Could be sold for different purposes in different river basins and across state lines.	Same plus new environmental impact statement and mitigation/compensation required.	Allow agricultural groundwater transfers (as well as municipal, industrial transfers) on same basis as water exports.	Make surface water transfers subject to same requirements as exports (public interest, environmental impact statement).
Other Alternatives	a. Limit purposes for which water rights can be purchased to instream flows protection. b. Limit purposes for which water rights can be purchased to water exchanges.	a. Do nothing. b. Discourage exports by better defining public interest factors to protect Nebraska water uses. c. Discourage ground water exports by regulating groundwater use to reduce or prevent groundwater depletion. d. Discourage surface water exports by establishing minimum stream flow requirements. e. Give state greater control over exports through state water leasing. f. Explore *Sporhase* instate water use preference.	Make transfers subject to strict groundwater use regulations to prevent or limit depletion.	Make transfers subject to instream flow requirements.

irrigation of up to 160 acres of an adjacent section. The new requirements would apply to virtually all surface water appropriation applications except instream flow applications, and to all nonexempt groundwater transfers off the section where the well is located. Thus, groundwater transfers for agricultural purposes would be authorized for the first time in Nebraska.

A permit would be required from the DWR for groundwater and surface-water transfers and exports, and surface water rights sales. The applicant would be required to prepare a full impact analysis of the proposed transfer, export, or water rights sale. The required impact analysis, which is modeled after federal environmental impact statement requirements, would include:

- The social, economic, physical, and environmental effects of the proposed action;
- Any unavoidable adverse impacts;
- Alternatives to the proposed action;
- The relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity;
- Any irreversible and irretrievable resource commitments; and
- Alternatives and recommendations when the proposed action involves unresolved conflicts regarding alternative resource uses.

Transfers, exports, or water rights sales involving small quantities of water, or obviously having no adverse impacts, would be administratively exempted from the impact statement requirement. The impact statement requirement would provide environmental protection requirements not available in water rights proceedings, an important innovation.

The DWR director would first determine, in consultation with appropriate state agencies, whether any of the adverse effects identified in the impact statement could be avoided through compensation or mitigation. For example, if a proposed groundwater transfer or export would lower the water levels in nearby wells, that adverse impact could be mitigated by agreeing to pay the costs of installing deeper wells. The same adverse impact could be avoided through compensating those landowners whose wells would be harmed by the groundwater transfer or export by paying for the replacement of their wells. Similarly, if a surface water diversion would interfere with wildlife habitat, that adverse impact could be mitigated by agreeing to minimum flow requirements to maintain habitat during critical periods, or by providing substitute water or habitat. If the DWR director determined that such compensation or mitigation was appropriate, the director would be required to specify such measures as a condition to granting the permit.

After the DWR director had considered how to handle adverse impacts, the proposed transfer permit, export permit, or water rights transfer permit would be required to be approved:

- If the applicant agreed to all conditions imposed by the director;
- If the director determined that the benefits of the proposed use or transfer would clearly outweigh any adverse impacts which could be avoided, compensated or mitigated; and
- If the proposed action was consistent with all other applicable laws, such as the Nebraska endangered species act.

If any one of these three requirements was not met, the permit would be required to be denied in the public interest.

In determining whether the benefits of the proposed water transfer or use clearly outweighed any unavoidable, uncompensable, and unmitigated adverse impacts, the director's considerations would be required to include:

- The economic, environmental and other benefits of the proposed use or transfer;
- The nature and extent of remaining adverse social, economic, physical and environmental impacts of the proposed transfer or use;
- Opportunities for future water uses foregone if the proposed transfer or use were permitted;
- Alternative actions and water sources available to the applicant; and
- Any other factors the director deemed relevant to the public interest and to the health and safety of Nebraska's citizens.

Any permits granted would be conditional on payment of the first annual permit fee for the water used or transferred. Permits could be granted for up to fifty years, although a permit may be renewed following the same procedures as for the original application. Groundwater transfers and exports would be limited to no more than 60,000 acre-feet annually — the amount of the largest groundwater transfer (from the Platte River to Omaha) currently occurring in Nebraska. The quantity of water that could be sold with a transfer of surface water appropriations would be the amount of water historically consumed, not the entire amount of water diverted. This would protect the return flows for downstream users.

The proposed bill is a thoughtful implementation of a comprehensive water transfer policy. The impact statement requirement establishes a potential for substantial environmental protection in water rights proceedings not available under current law. This is a significant innovation, although the effectiveness of this protection depends entirely upon how such a policy

would be implemented by the DWR director. Perhaps more importantly, the bill gives the DWR director implicit authority to tip the scales in favor of instate uses through the wildcard public interest criterion. Thus, although the LB 146 study did not explicitly explore the possibility of favoring instate water uses beyond pubic health and safety requirements in water export proceedings, the proposed water transfer bill is broad enough to give the DWR director sufficient discretion to make that distinction. The bill also shows potential exporters how to avoid that public interest determination through compensation and mitigation of adverse impacts.

The impact statement requirement establishes a potential for substantial environmental protection in water rights proceedings not available under current law.

While the proposed bill gives the DWR director discretion to establish substantial environmental protection conditions and conditions to protect local water users, the effectiveness of this approach depends entirely upon how the direetor would implement this authority. Recent DWR administrative decisions suggest that the director might be more protective of water development objectives than of environmental protection. In issuing water rights for a proposed Platte River irrigation project, the DWR director dismissed a finding by the Nebraska Game and Parks Commission that the project would harm endangered wildlife species and concluded instead that the project could not harm wildlife (Pearson and Aiken 1987). Presumably the DWR director's attitudes toward water development and environmental protection might change if the circumstances pitted export water uses against protection of Nebraska environmental resources.

A related issue is groundwater depletion. While the DWR director would have authority to implement a no-depletion policy, the director's discretion would also allow a depletion policy to be implemented if compensation or mitigation were provided. Natural resource districts, however, would be authorized to establish more restrictive groundwater allocation policies within groundwater control areas, and these stricter policies would apply to exporters. Thus, if an NRD wanted to limit groundwater withdrawals for local use and export use to no more than average annual recharge, groundwater depletion from water exports could be avoided. However, an area with abundant groundwater supplies might have difficulty persuading the DWR to approve control area designation (Aiken 1980).

Rights to Saved Water

The second bill would establish rights to saved water and authorize transfers of the saved water (see table 1). Saved water — also called *salvaged water*— refers to water which normally would be consumed or lost in a water use but which is instead saved through an improved use or other water-saving technology. A common example is lining previously unlined irrigation ditches, thus reducing water seepage from the canals. In some states, municipalities have shared the cost of lining irrigation canals in exchange for a share of the saved water. One difficulty is determining how much water has really been saved through the improved practices. Water that might appear to be lost may in fact return to the stream or groundwater basin, where it is used by others.

Under the proposed saved water bill, a surface water appropriator wishing to install a water-saving practice or technology would first file a conservation proposal with the Department of Water Resources, describing how the practice would save water. The DWR might approve the water conservation proposal if it determined the plan was feasible, would conserve water, could be implemented without injuring existing water rights, and was not contrary to the public interest. Once the applicant completed the conservation proposal, the DWR would determine the quantity of water saved. Any water conserved might be used by the applicant to irrigate additional land, reserved for future use, or sold for any purpose, including instream flows.

The proposed bill would provide financial incentives to save water by allowing the appropriator to sell or otherwise use the saved water. The difficulty and controversy would come in determining the actual quantity of water saved. The return flows issue would be just as controversial in Nebraska water rights proceedings as they are in other states.

Water Use Fees

The water use fee bill is the vehicle for providing financing for Nebraska water projects (see table 1). The bill would require payment of water use fecs by:

- Groundwater users irrigating more than 160 acres across a section line,
- Other groundwater users transporting more than 250 acre-feet across a section line annually,
- Surface water users diverting more than five cubic feet per second or using more than 1,000 acre-feet annually,
- Owners of groundwater recharge reservoirs recharging more than 1,000 acre-feet per year, and

- Surface water storage reservoir owners storing more than 1,000 acre-feet per year.

The water use fees would vary, depending on the purpose of use. For public water supply systems (municipal and rural domestic water users) the fee would be $5 per acre-foot or $8 per service connection (user's choice). For irrigation use, the charge would be $0.50 per acre foot or $1 per acre irrigated (user's choice). For industrial, commercial, and power uses, the charge would be $1 per acre-foot. The fees collected would be available for water development (reservoir construction) purposes.

The water use fee is likely to be the most controversial feature of the water transfers legislative proposals. The fees would be applied to both instate uses and out-of-state uses. Most irrigation uses would be exempted, but many municipal, rural domestic, and industrial users would be required to pay the fees, as would all water exporters. If the fee were imposed immediately, it would raise approximately $7 million annually. As discussed earlier, there is a real question as to whether revenue such as this should be used for increased water development.

The water use fee is likely to be the most controversial feature of the water transfers legislative proposals.

Water Right Transfers Clearinghouse

Another proposed bill would require the Water Management Board to maintain a list of prospective buyers and sellers of water rights and to distribute a transfer guide containing information about the transfer process (see table 1). This clearinghouse function would facilitate the water rights transfers or sales process, and would provide buyers and sellers with information regarding how to buy and sell water rights. The bill is simply an additional option to facilitate the water rights transfer process if such transfers are authorized.

State Water Transfer Projects

The last proposed water transfers bill would authorize the Water Management Board to establish its own water projects (see table 1). The projects could be for any purpose, including water export. The board could also participate in water projects sponsored by other entities. Board water projects would be funded either from legislative appropriations or from water use fees.

Enacting this bill would have little consequence until substantial amounts of money were available for water transfer project development. If, for example, the water use fee were enacted and all or most of the money allocated to water transfer project development, the program would have significant effects on encouraging instate water transfers and water exports. In the absence of such aggressive funding, however, the program would have little significance. The important issue is program funding rather than the details of the water transfers project development program itself.

Additional Policy Alternatives

As indicated earlier, LB 146 was based on the questionable premises that the *Sporhase* decision requires states to treat water exports on the same basis as instate water uses and that water exports represent an attractive financial opportunity for the state of Nebraska. As a result the LB 146 study examined only policy options that would encourage and facilitate exporting water from Nebraska. Alternatives to limit water exports, such as those policies developed by New Mexico, were not considered. A broader range of policy alternatives are available to Nebraskans, more than those considered in the LB 146 water transfers study. Additional policy alternatives include a more limited authorization of water rights transfers, more restrictive groundwater allocation policies, state water appropriation and water marketing, and the riskier option of exploring the boundaries of the limited instate preference authorized by the *Sporhase* decision (see table 1 for an overview).

The LB 146 study examined only policy options that would encourage and facilitate exporting water from Nebraska. Alternatives to limit water exports, such as those policies developed by New Mexico, were not considered. A broader range of policy alternatives are available to Nebraskans.

Water Exports and Transfers Policy Alternatives

The major political concern regarding water exports and instate interbasin water transfers is that the areas from which the water is exported will be irreparably harmed. Sandhills residents foresee wet meadows drying up,

streamflows diminishing, wetlands disappearing, and, in the extreme, the Sandhills blowing away. While these fears are exaggerated, there could be significant local groundwater effects extending perhaps several miles from a withdrawal site if significant quantities of Sandhills groundwater were withdrawn. The policy issue is whether the harm is irreparable or whether it can be compensated or mitigated. These are complicated factual determinations that must be made on a case-by-case basis.

The political fact that Sandhills residents may have to accept, unpleasant as it may be, is that if water is needed by a more populous region, the thirsty population will find political ways to quench its thirst. The choice that the water transfer legislative proposals offer residents of water-rich areas is whether that water will be purchased or, instead, obtained through political fiat.

There are many different scales of possible water transfers and exports. Most transfers or exports are likely to be similar to the *Sporhase* transfer itself: Small quantities moved over short distances. Larger quantities imported over longer distances quickly become expensive and will be a last resort among water supply options. For example, the cities of Phoenix, Tucson, Denver, and Los Angeles will find it much less expensive to purchase local irrigation water rights and convert them to municipal use or to develop local water supplies than seeking to import groundwater from Nebraska. In the near future, importing Nebraska groundwater to these regions is simply not cost-effective. While large-scale exports are possible in the future, they are probably at least a generation away. This does not mean that this possibility should be dismissed, but rather that if Nebraska authorizes water transfers and exports it will not immediately result in massive exports of water.

A more likely result is the interbasin transfer of groundwater for irrigation purposes. Several areas of the state, including the central Platte River, Blue River, and Republican River basins, are facing groundwater depletion from irrigation. These regions are competing for Platte River water rights to build surface water irrigation projects to replace some but not all of the groundwater supply being depleted. Whether any of these proposed projects will be successful depends largely on whether the state or federal government is willing to share in paying the project costs. In any event, there is a greater demand for supplemental irrigation water than the Platte River can supply even under the most optimistic assumptions (Aiken 1987). Therefore, irrigators who do not secure a Platte River water project will look to alternative water sources, including Sandhills groundwater. Interbasin groundwater transfers could become the water source for new irrigation projects if state financing for such projects (for example, from a state water use fee) can be generated.

The LB 146 water transfers study proposes to authorize instate and interstate water transfers with strong mitigation and compensation requirements. With this background, several additional policy alternatives appear worthy of consideration.

Do Nothing. One option is to make no substantial policy changes. In this scenario the current surface and groundwater export statutes would be retained without major change. Statutory changes that should be considered, however, include clarifying that groundwater cannot be exported under a municipal or industrial groundwater transfer permit without also obtaining a groundwater export permit.

This policy would provide some protection to Nebraska groundwater uses in that the Department of Water Resources director has broad, if implicit, discretion under current statutes to tip the scales toward instate uses in evaluating proposed water exports. In addition, Nebraska landowners would not have the opportunity to sell the groundwater underlying their land for export. This approach would reduce current political controversy, deferring it to the future.

Discourage Exports. A second option would be to discourage exports by better defining the public interest criterion in surface and groundwater export statutes to include a greater consideration of future instate water needs. This could include the possibility of water transfers and higher water use charges for exports. Basically, this option would explore the boundaries of the limited instate preference of *Sporhase*.

Strictly Allocate Groundwater. Nebraska is one of only a few western states that does not allocate groundwater similarly to surface water. Given approval in the *Sporhase* decision of strict water conservation measures applied across the board, Nebraska could establish strict groundwater allocations to achieve stated aquifer life objectives.

A very modest objective would be to require groundwater supplies to last at least forty years and to restrict withdrawals and well drilling accordingly. This requirement in Colorado forced Mr. Sporhase to come to Nebraska for water to irrigate his Colorado land: that state had already closed his area to further drilling to prevent groundwater depletion in less than forty years. In some areas where supplies were more abundant or groundwater development less widespread, a 100-year minimum useful life might be a more appropriate policy objective. This would be more restrictive, but it would provide a higher degree of resource protection. To accomplish a perpetual useful life — the stated policy of most natural resource districts in Nebraska — would require limiting total withdrawals to average annual recharge. This restrictive approach would be most feasible in an area such as the Sandhills,

where recharge is significant and where irrigation is not as widely developed as in other regions of Nebraska.

The effect of these restrictive policies would be to discourage large-scale groundwater exports. For example, low volume exports to small communities or rural water districts would probably not be affected by strict groundwater allocation policies; large exports to Denver, Phoenix or Los Angeles would. Local groundwater development would also be restricted, which may be one reason this option was not pursued by the Water Management Board in the water transfers study.

Protect Instream Flows. A similar policy could be established for surface water through state water reservations or appropriations for instream purposes in order to maintain existing streamflows and associated environmental values. Such a policy would be favored not only by environmental interests, but also by Platte Valley municipalities depending upon Platte River recharge of municipal wellfields, such as is the case for Omaha, Lincoln, Grand Island and Fremont.

State Water Leasing. One option worthy of more detailed consideration is for Nebraska to appropriate its unappropriated water to the state itself and then make that water available for use on a lease basis rather than by appropriation. A similar policy has been adopted by Montana, ostensibly to insulate the state from the *Sporhase* decision. The basic theory is that if the state is leasing rights to use water rather than allocating water rights, the state has entered the market directly rather than regulating market activity and therefore is not subject to the interstate commerce clause (Tarlock 1988). If the state is a market participant rather than a market regulator, the state may favor its own citizens in, for example, marketing the state's water. This might include charging higher prices for water exports than for instate water uses, even prices making exports prohibitively expensive. The market participation strategy has not yet been legally tested regarding water exports, but it is an option worth further consideration if Nebraska policy makers determine the state is better served by using Nebraska water in Nebraska rather than by selling it for export.

Instate Water Use Preferences. The final water exports strategy is to build on the implied *Sporhase* instate preference. The *Sporhase* decision suggests that in states where water is publicly owned, public ownership may justify favoring instate use over water exports beyond public health considerations. Unfortunately, the U.S. Supreme Court did not explain what it meant when it said this. Ultimate resolution of this issue will require additional litigation of state water export policies, similar to that of *El Paso I* and *II*, including further litigation in the U.S. Supreme Court. What this instate preference suggests, however, is that states may be free to pursue alternatives to favor instate use over water exports, and that this can be done through vehicles other than the Nebraska reciprocity clause.

How might an instate preference be advanced? The easiest way is to require positive net benefits to Nebraska from all proposed water appropriations, including water exports. If a proposed export would interfere with existing water uses, harm environmental values, and provide economic benefits only outside Nebraska, the project would have no benefits to Nebraska and the state might be justified (under the implied *Sporhase* instate preference) in denying the application. The appropriation criteria could be refined to require net benefits in every evaluation category; that is, positive net water supply benefits to Nebraska, positive net economic benefits to Nebraska, and positive net environmental benefits to Nebraska from any proposed appropriation (including exports). If exporters must score positively on every evaluation criterion, the cost of water exports would be increased substantially: new wells would have to be drilled or well owners compensated for lowered groundwater tables; streamflow would need to be augmented to compensate for stream-depletion effects of groundwater pumping; and local governments would need to be compensated for reduced property tax receipts if groundwater declines lowered land values.

The basic policy issue is whether water exports are good or bad for Nebraska. LB 146 uncritically concludes that exports are good and should be vigorously pursued. The public response to LB 146 suggests that Nebraskans

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States may be free to pursue alternatives to favor instate use over water exports, and this can be done through vehicles other than the Nebraska reciprocity clause.

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do not share that judgment. If the *Sporhase* decision means that water exports are inevitable, then Nebraska should take some steps to protect its legitimate interests. This may include a policy of encouraging water exports for the economic benefits of Nebraskans with water to sell. At this point, however, it seems premature to conclude that the state's interest is best served by aggressively trying to export Nebraska water for sale, the original intent of LB 146 and LB 151.

Water Right Transfers Policy Alternatives

The specter of selling water rights raises many of the same fears as selling or exporting water. Images come to mind of irrigated land reverting to

dryland, rural communities dying, and the state turning to dust. Again, these fears are significantly exaggerated. As irrigation consumes approximately ninety percent of all water used in the West (and in Nebraska), all nonirrigation uses could be doubled by reducing irrigation only ten percent. Even if municipal and industrial water uses expand dramatically, they are not likely to double for many years. Thus, making water rights salable will not lead to the end of irrigated agriculture in Nebraska.

The LB 146 water transfers study recommends making water rights freely transferable between uses and across river basin and state lines, subject to a showing of no injury to existing water rights holders. This would create an opportunity for some imaginative water management opportunities in Nebraska. For example, if the Two Forks project to impound additional Platte River water in Colorado would reduce streamflow into Nebraska, harming wildlife species, the Two Forks sponsors could avoid that harm by purchasing Nebraska surface water rights and converting those rights to instream uses. Similarly, if the Wyoming Deer Creek project would reduce water availability to downstream Nebraska irrigators, Deer Creek sponsors could purchase Nebraska water rights and either retire them or make them available to Nebraska irrigators. Upstream development could still occur, and Nebraska water uses would be compensated either with money or with water. Wildlife proponents within Nebraska could also buy out existing irrigators and convert their rights to instream uses. Making water rights salable would add considerable flexibility to Nebraska water management options.

Against this background, additional policy alternatives include doing nothing and making water rights transferable, but only for environmental enhancement and water resource mitigation.

Do Nothing. A possible alternative is to do nothing — to leave existing water rights transfer policies intact. This would deprive Nebraska of the flexibility afforded by water right transfers, but would largely insulate the state from exporting water rights. If water rights could not be sold for use outside the river basin or for a different use, there would be virtually no economic reason to purchase water rights from within or outside of Nebraska.

Environmental Enhancement and Mitigation Transfers. An intermediate policy would be to allow water rights to be changed to different uses only when the purpose was to improve minimum streamflows or to mitigate the harm to irrigators of an upstream water project. That is, irrigation water rights could not be sold for municipal or industrial uses but could be sold for environmental enhancement or mitigation. Thus, surface water rights could be purchased and the water left in the stream either to compensate for the

stream depletion effects of an upstream water project, or simply to improve wildlife habitat. This option would allow Nebraska to capture some of the flexibility afforded by water rights transfers without completely opening up the possibility of interstate water rights transfers for municipal or industrial purposes.

Conclusion

Water transfer is a difficult, complicated, and controversial topic. Unfortunately, the *Sporhase* decision will not allow Nebraska policymakers the luxury of avoiding the issues involved. Policymakers must understand the interrelationship of water transfer and its various policy strands with other water policy issues, such as groundwater depletion, instream flows, financing water development, and the relationship between water development and crop surpluses. The Water Management Board's water transfer study and proposed bills provide significant issues for political consideration. This chapter provides a broader perspective of how these issues relate to larger water and natural resource policy concerns.

Endnote

1. An aere-foot of water is enough water to cover an acre of land to a depth of one foot, or 325,851 gallons. An acre-foot of water will irrigate approximately one half acre of corn or will supply the domestic needs of a family of four for approximately one year.

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THE IMPORTANCE OF INTERSTATE HIGHWAYS TO ECONOMIC DEVELOPMENT IN NEBRASKA

5

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Louis G. Pol

This chapter focuses on one aspect of economic growth: the post-construction effect of interstate highways on income and sales expansion. Using data for all Nebraska and Iowa counties, interstate highways are found to have the most positive economic impact on areas with larger populations; small areas are not likely to experience much more than short-term gains. This finding has significant implications for the planned construction of a north-south, four-lane highway in Nebraska. The route of such a highway should be selected only after a careful look at the ability of local areas to capitalize on highway-induced growth impulses.

Introduction

In recent years Nebraska has examined its economic future with particular emphasis on strengthening its nonagricultural sectors. It is generally accepted that, while agriculture has contributed extensively to the state's prosperity, Nebraska's future economic performance will be strengthened by a balance among the various economic sectors. There is also increased recognition that the geographic distribution of growth has not been uniform over the past twenty years. Nebraska's larger cities have shown better economic performance than have smaller communities and rural areas. This has resulted in both urban-rural disparities and uneven concentrations of economic strength in the state. Even more troubling to many Nebraskans is the realization that the state is seriously trailing national averages for many of the standard indicators of economic health.

Since 1980, the term *economic development* has been a priority among virtually every citizen and business group in the state. At the local level, economic development efforts have typically focused on generating jobs and creating or revitalizing local economic development organizations. In a

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number of areas, several counties and communities have joined together to promote economic advancement on a regional basis.

At the state level, members of the Unicameral established subcommittees to examine the issues. Economic development terminology crept into many legislative actions, special legislation was advanced, and economic development became the focal point, if not the keystone, of both the Nebraska legislature and the governor's agenda during the mid-1980s. More recently, a study backed by the Nebraska Press Association-Peter Kiewit Foundation, *New Seeds for Nebraska*, has contributed to the dialogue about Nebraska's economic future.

There is reason to question the data and analysis used to advance what amounts to at least a $50 million program. Perhaps more disturbing is that so many hopes about the economic future of the state and local communities have come to rest on a singular event.

One of the most-discussed aspects of Nebraska's economic development was the thesis that economic performance in the state was strongest in the Fishhook: the communities along Interstate 80 and in the Platte River Valley communities of Fremont, Norfolk, and Columbus. (If this pattern is plotted on a map it gives the appearance of a fishhook, thus the name.) The conclusion was that Interstate 80 was an important factor to the economic development of Nebraska. This correlation seemed so evident that the legislature mandated the construction of at least one additional four-lane highway (State of Nebraska 1988). The main purpose of the legislation was to provide an economic initiative for the region served by the new highway.

As this idea was being discussed in late 1987, few challenged either the accuracy of these ideas or the information upon which such decisions were made. While the intentions were admirable, there is reason to question the data and analysis used to advance what amounts to at least a $50 million program. Perhaps more disturbing is that so many hopes about the economic future of the state and local communities have come to rest on a singular event.

This chapter provides information to enhance the dialogue and actions concerning four-lane and interstate highways and economic development in Nebraska. County-level data from Nebraska and Iowa are used to analyze economic performance among counties in order to determine whether growth was influenced by the presence or absence of an interstate highway.

Although the analysis finds a link between interstate highways and county economic performance, the relationship is strongest in more populated counties where an adequate social, economic, and physical infrastructure exists to take advantage of growth impulses resulting from an interstate.

The chapter begins with a brief review of what is known about highways and economic development. Next, economic development is defined. Non-interstate highway factors that might influence local economic performance are then profiled. The chapter next presents major findings drawn from descriptive and regression analyses of highway and nonhighway factors influencing county economic performance from 1956 to 1986. Implications for current efforts focusing on the development of a north-south expressway in Nebraska are highlighted in the final section.

Interstate Highways and Economic Development

Although the link between interstate highways and economic development has been the subject of a number of studies, these studies have used conflicting methods and measures (Briggs 1981). Perhaps most important, few use nonemployment-based measures of economic performance.

Moon's 1987 study is one of the more useful because he studied the effects of interstate exchanges on economic development as measured by the number of commercial, industrial, and residential structures in the immediate area. He concludes that the exchanges produce improvements.

In their study, Stephanedes and Eagle (1987) found that counties classified as economic centers experienced positive growth in employment when highway expenditures were increased. These findings are similar to those of Wang, Peterson, and Schofer (1975), who found that developing urban areas benefited from interstate highways.

Other studies have found that the interstate highway system can improve labor mobility, thereby changing the economic performance of counties based upon employment patterns. Wilson, Graham, and Aboul-Ela (1985), in their study in New Brunswick, Canada, found that while the highway system could not explain differences in general economic development, there was a relationship between highway completions and commuting patterns. These findings are consistent with the arguments offered by the Congressional Budget Office: improved transportation between two communities increases the available labor pool in the communities and may attract employers to an area (Stephanedes 1985).

The studies cited above show that a major issue concerning interstate highways and economic development is exactly what kind of economic changes interstate highways bring. Deen's study (1966) included variables such as sales tax, origin of vehicle, gross receipts, and labor mobility. Bardwell and Merry (1960) used sales tax collections as the basis for compar-

ing economic activity. Stephanedes (1985) identifies an input-output model to measure highways' effects and included the following elements: forecast of employment, wages, income, and consumer price index. Moon (1987) and Wang, Peterson, and Schofer (1975) included population as a factor.

The working assumption of the chapter is that economic and population growth will be greatest in the counties with interstate highway exchanges, second greatest in the counties that are contiguous to counties with interstate exchanges, and slowest in counties that are noncontiguous – farthest from the interstate highways.

The methodology underlying the research in this chapter was influenced strongly by Farmer and Pigman (1974). They focused on purchasing power and improvements in lifestyle in their research. Still, it can be reasonably asked whether a focus on employment change would be just as good, particularly because interstate highways appear to increase labor mobility and commuting. At first, it was unclear how to correctly build labor mobility and commuting into the research for this chapter. However, when the final analysis was completed using income, population and retail sales, these concerns dissipated. First, commuting of labor, regardless of the county of employment, would be reflected in these economic indicators because income and population are reported by county of residence and retail sales are reported by county of collection. While commuting might have increased, it would be an intermediate factor and not affect where those people lived, their incomes, or the associated retail performance, which is a function of where people spend their money for goods and services. Thus, while the procedures might in the first instance appear overly simplistic, they actually are more specific and measure more exactly the economic performance of an area than do other models that use employment change — an intermediate stage of performance.

Defining and Measuring Economic Development

The research reported in this chapter was guided by two distinctive but critical demands: to develop an acceptable definition of economic development and to establish a methodology for assessing the changes and comparing the economic development associated with the placement of interstate

highways. The working assumption of the chapter is that economic and population growth will be greatest in the counties with interstate highway exchanges, second greatest in the counties that are contiguous to counties with interstate exchanges, and slowest in counties that are noncontiguous—farthest from the interstate highways.

The first task was to establish an acceptable definition of economic development. Much of the economic development literature refers to the developing areas of the world and uses measures such as literacy, infant mortality, and level of education. While such information provides insights about the condition of the population, it does not adequately describe economic performance.

In the American literature on economic development, there has been a dependency on measures of manufacturing and industrial balance, enhancement of tax structures, and levels of employment/unemployment. While these are valuable indicators for assessing the composite economic structure, they are intermediate and not ultimate measures of economic development. For example, the development of many small manufacturers of old technology, which create jobs that pay minimum wages, might be measured as positive economic development. In reality, though, it may not increase wages or standards of living.

Economic development, then, should be measured and appreciated as it improves the general economic well-being of the population of a given area. Furthermore, economic development is a relative concept; economic improvement takes place at varying rates across different geographic areas.

Thus, economic development can best be defined by the prosperity and incomes of the people and institutions within a community. In this chapter, three general measures are used:

- Population — Population is linked to economic growth because people follow employment opportunities. The lack of these opportunities will cause people to seek them elsewhere. People can and do commute between communities, but the distance they are willing to travel is limited. Some people seek retirement locations without considering employment opportunities, but then these retirement locations generate employment opportunities for others.

- Income— Income is a measure of value being contributed by a labor force. People are paid according to what they contribute to the economic system. Some industries traditionally pay higher wages, partly because they make greater economic contributions and possibly because of the need to attract labor. Income, as an aggregate factor, reflects the number of individuals who are employed and at what level they are employed. Aggregate income reflects adjustments for the

rates of labor force participation, employment/unemployment patterns, and the size of the labor force. While income does not describe adequately where differences in economic performance occur, it distinguishes between the performances of smaller areas, such as counties.

- Retail sales — Institutional performance must be measured in economic terms. Retail sales measures the level of economic performance of an area, the attractiveness of the area, and its ability to retain consumers. If people are not willing to make their retail purchases in local stores, then the future economic performance of the retail sector is limited.

Beyond population, the specific indicators used in the analysis are: Effective Buying Income (EBI), retail sales, and Buying Price Index (BPI).[1] Each of these measures represents a different aspect of economic development. While EBI represents purchasing power, it also reflects the level of employment. However, as was argued earlier, it is superior to a measure of employment alone because it shows how salaries and employment increase. For example, a farm operator's spouse who takes a low-paying job to help make ends meet would be measured as an increase in employment, although income in that farm household might increase very little. EBI would give a truer picture of this household's condition.

Economic development should be measured and appreciated as it improves the general economic well-being of the population of a given area.

Retail sales measures the most important aspect of economic exchange in a county and capture the cash/goods relationship for sales ranging from farm equipment to furniture and groceries. BPI is a composite index and also measures purchasing potential.

These measures have been used consistently since the 1930s by the editors of *Sales and Marketing Management* to compare the economic performance of the cities and communities of the United States. Planners who are responsible for making decisions about store and market locations rely on this information to advertise, move merchandise, build stores, and make commitments based upon the expected performance of various geographic areas.

Analyzing Interstate Highway Economic Development Linkages

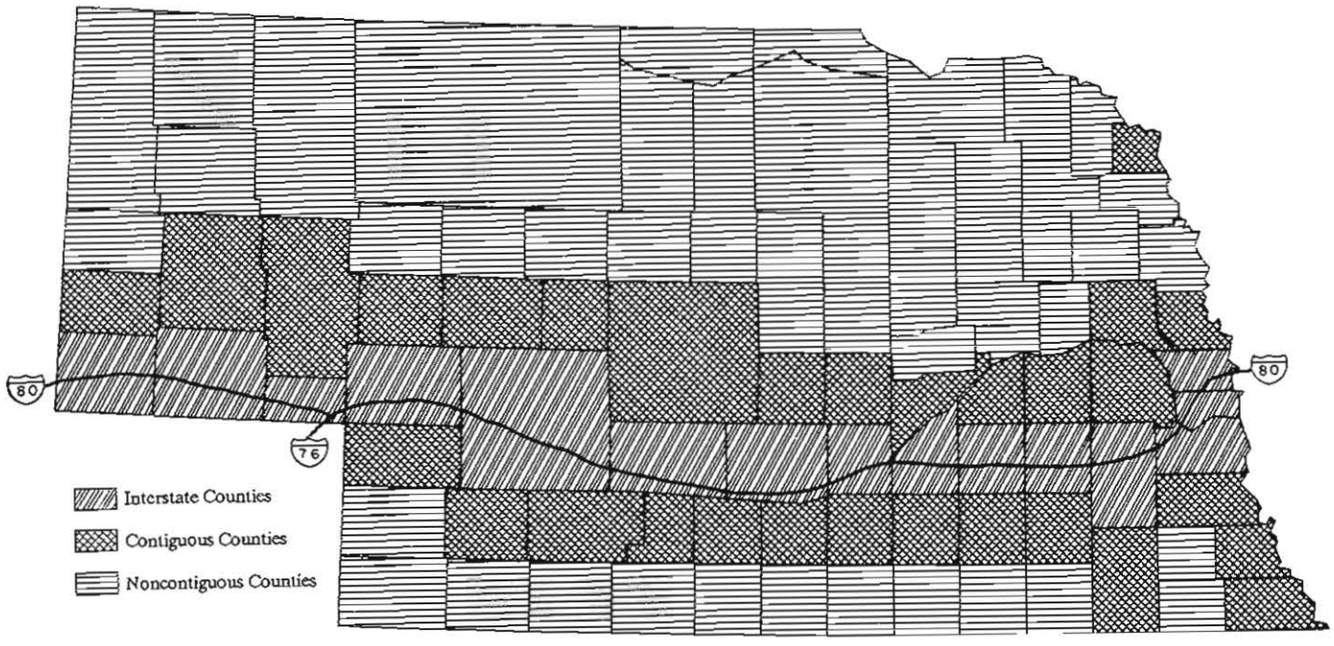
Proponents of highways argue that counties with interstate exchanges experience higher rates of growth in income, retail sales, and population than do counties without exchanges. To accurately assess these relationships, however, requires that the potential influence of other factors also be considered. In addition to information on whether a county has an interstate exchange, is contiguous to an interstate county, or is noncontiguous to an interstate county, the following factors are also considered, in varying combinations, in the analysis: population, number of households, percent of population aged 18-34 years, and percent of population 50 years and older.[2]

The interstate exchange designation is central to the study. The contiguous county designation is included because of the need to measure the possible positive economic effects of being adjacent to a county containing an interstate exchange. Being adjacent to a county with an interstate highway exchange may foster economic growth because of proximity to the highway. Noncontiguous counties should receive fewer benefits, given their greater distance from the highway. Figures 1 and 2 show the interstate, contiguous, and noncontiguous counties in Nebraska and Iowa.

The two age categories — percentage of the population aged 18-34 and percentage 50 and older — represent the labor force potential in the county. A higher proportion of 18 to 34-year-olds indicates a greater work force potential, while a higher proportion of people 50 and older represents a lower work force potential. The population aged 18-34 is also more likely to migrate and is therefore the most rapidly declining segment of the population in rural counties.

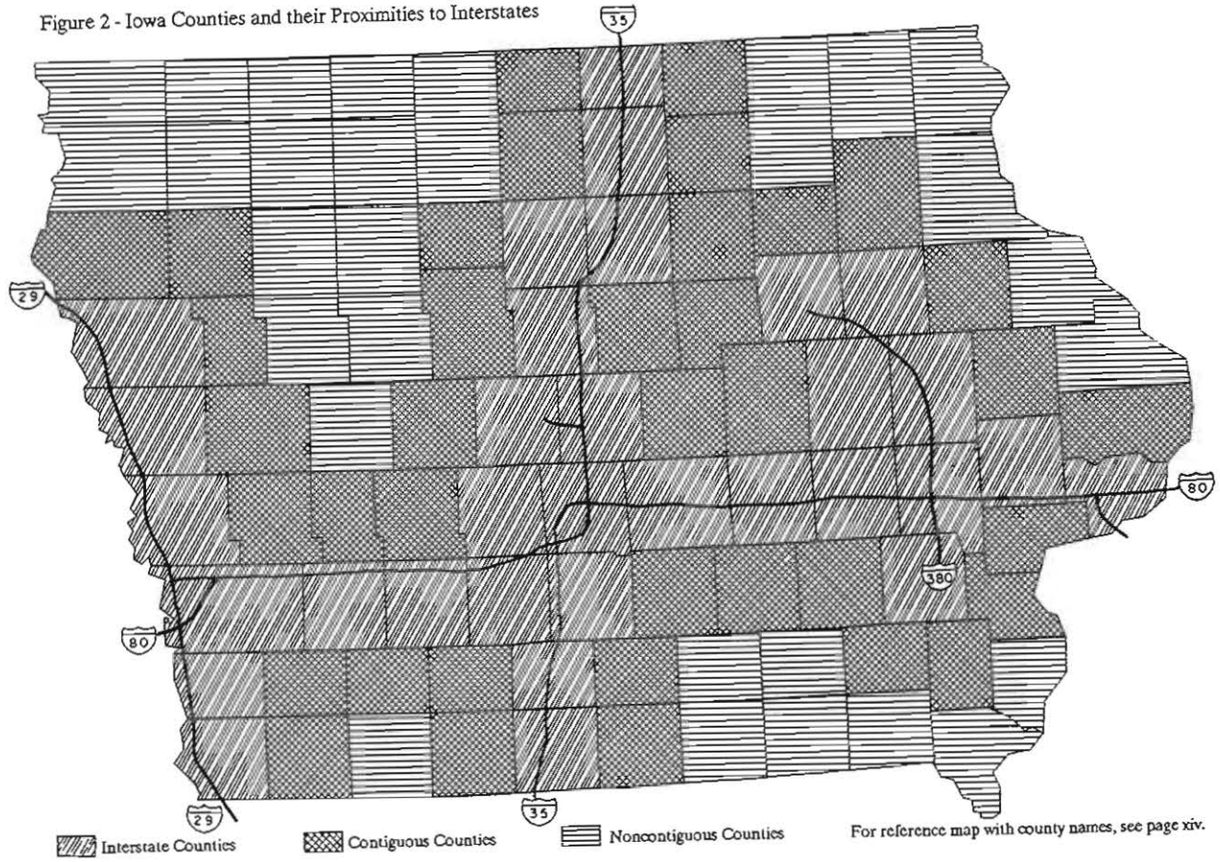
The population and household variables represent two related concepts. The first concerns the need for a county to have a critical mass of persons in order to experience economic growth. In other words, without potential purchasers, completion of an interstate highway through a county may have little economic impact. Second, population and household size partially reflect the existence and need for economic entities. Without a minimum population and household base, certain basic businesses (for example, a bank or a grocery store) may not be able to remain viable. Furthermore, many public services cannot be maintained. If these basic services do not exist, growth will be diverted to communities where such services are present. It is the loss or lower level of social and economic infrastructure that has made both reversing population decline and increasing economic activity so difficult in many rural counties.

Figure 1 - Nebraska Counties and their Proximities to Interstates



For reference map with county names, see page xiii.

Figure 2 - Iowa Counties and their Proximities to Interstates



For reference map with county names, see page xiv.

Impact of the Interstate Highway on Economic Development

The assessment of interstate highway impacts on economic development is both descriptive and analytic. Initially, three types of counties are profiled here: those with interstate highways, those contiguous to counties with interstate highways but containing none themselves, and those that neither contain interstate highways nor lie contiguous to counties that do. The profile includes all of the variables described above for 1958 through 1986 at five-year intervals. The year 1958 was selected as the starting point because it provides information for the region 10 years prior to completion of the interstate highways. The final year, 1986, is the last year for which data are available. Five-year intervals were used to show several periods of change.

While the median population of the interstate counties grew during 1958-86 (although there was a slight dip from 1983 to 1986), the median population of contiguous and noncontiguous counties declined during that time period.

Differences Among Interstate, Contiguous, and Noncontiguous Counties

The data for seven time periods (1958-86) are presented in table 1. A number of interesting patterns can be identified. For example, table 1 shows that interstate county populations were larger and had greater EBIs, retail sales, and BPIs than counties in the other two categories prior to construction of the interstate highway.[3] This pattern has been maintained through the 1958-86 time period. In addition, the populations of interstate counties are somewhat younger and have a higher percentage of persons aged 18-34 and a lower proportion aged 50 and older than the other counties.

It is interesting to note that, while the median population of the interstate counties grew during 1958-86 (although there was a slight dip from 1983 to 1986), the median population of contiguous and noncontiguous counties declined during that time period. While all three types of counties show increases in the key variables used in this analysis during 1958-86, disparities appear between interstate, contiguous and noncontiguous counties.

Table 1 - Key Variables Cross-Classified by Interstate Status for Nebraska and Iowa Counties, 1958-86*

Variable	Year 1958	1963	1968	1973	1978	1983	1986
Interstate counties (n = 47)							
Population (number)	19,600	19,500	18,700	20,200	19,900	20,600	20,500
Households (number)	6,100	6,000	5,900	6,700	6,900	7,500	7,800
EBI (thousands of dollars)	28,927	32,772	47,873	74,005	121,694	168,789	214,633
Retail sales (thousands of dollars)	22,835	28,827	31,819	46,783	53,815	84,866	96,697
BPI	1.06	1.02	.992	.982	.834	.767	.711
Age 18-34 (percent)	NA	NA	NA	NA	24.600	26.900	25.700
Age 50+ (percent)	NA	NA	NA	NA	29.400	29.800	29.800
Contiguous counties (n = 71)							
Population (number)	13,700	13,300	13,100	13,400	13,900	13,400	13,100
Households (number)	4,100	4,400	4,300	4,800	5,200	5,200	5,200
EBI (thousands of dollars)	19,179	21,769	31,603	47,599	73,602	112,220	135,567
Retail sales (thousands of dollars)	16,299	18,481	23,565	31,002	34,989	47,516	61,142
BPI	.718	.664	.658	.687	.579	.484	.462
Age 18-34 (percent)	NA	NA	NA	NA	21.800	23.900	23.100
Age 50+ (percent)	NA	NA	NA	NA	33.500	33.400	33.400
Noncontiguous counties (n = 74)							
Population (number)	10,250	9,600	9,050	9,250	9,050	9,050	8,850
Households (number)	3,100	3,000	2,800	3,250	3,250	3,250	3,250
EBI (thousands of dollars)	14,456	14,474	20,425	28,294	43,689	59,892	72,361
Retail sales (thousands of dollars)	11,604	12,154	17,850	23,724	23,828	36,787	34,959
BPI	.527	.459	.452	.417	.347	.321	.265
Age 18-34 (percent)	NA	NA	NA	NA	20.200	23.200	22.400
Age 50+ (percent)	NA	NA	NA	NA	34.000	33.400	33.450

*All numbers are expressed as medians.

Table 2 shows ratios for the key variables that permit a relatively quick comparison of the trend for each variable for contiguous and noncontiguous counties relative to interstate counties. Each ratio is derived using the interstate county figure as a base. For example, the 1958 ratio for population in contiguous counties is 0.7 and was arrived at by dividing 13,700 (1958 population value for contiguous counties in table 1) by 19,600 (1958 population value for interstate counties). In other words, the median population size for contiguous counties is seventy percent that of interstate counties in 1958. By 1986, the median population size for contiguous counties was sixty-four percent of the median value for interstate counties.

In addition to showing that contiguous and noncontiguous counties have smaller populations and lower levels of economic activity than interstate counties, the ratios highlight several other patterns. One is the general continuum of economic performance, with economic performance being highest in the interstate counties and lowest in the noncontiguous counties.

Table 2 - Ratios for Key Variables in Nebraska and Iowa Counties, Relative to Interstate Counties, 1958-86*

Variable	Year 1958	1963	1968	1973	1978	1983	1986
				Contiguous counties			
Population	0.70	0.68	0.70	0.66	0.70	0.65	0.64
Households	.67	.67	.73	.72	.75	.69	.67
EBI	.66	.66	.66	.64	.60	.66	.63
Retail sales	.71	.64	.74	.66	.65	.56	.63
BPI	.68	.65	.66	.70	.69	.63	.65
Age 18-34 (percent)	NA	NA	NA	NA	.87	.89	.90
Age 50+ (percent)	NA	NA	NA	NA	1.14	1.12	1.12
				Noncontiguous counties			
Population	.52	.49	.48	.46	.45	.44	.43
Households	.51	.50	.47	.48	.47	.43	.42
EBI	.50	.44	.43	.38	.36	.35	.34
Retail sales	.51	.42	.56	.51	.44	.43	.36
BPI	.50	.45	.46	.42	.42	.42	.37
Age 18-34 (percent)	NA	NA	NA	NA	.82	.86	.87
Age 50+ (percent)	NA	NA	NA	NA	1.16	1.12	1.12

*The location of an interstate highway is used as a base for the ratios, which represent the contiguous county or noncontiguous county as a percentage of the interstate exchange counties.

The second pattern is a tenuous stability in the contiguous counties relative to interstate counties. Noncontiguous counties, on the other hand, experienced some erosion in performance relative to interstate counties during 1958-86.

Table 3 shows changes in population, EBI, and retail sales for two change periods (1958-68 and 1968-78) — the ten-year intervals before and after the completion of the interstate highway system. The ratios are expressed as the 1968 value divided by the 1958 value, and the 1978 value divided by the 1968 value. The 0.95 population value for interstate counties means that the 1968 median population for interstate counties is 95 percent of the 1958 median. The EBI value of 1.65 tells us that the 1968 EBI was 165 percent of the 1958 EBI.

These data show that noncontiguous counties lagged behind the performance of interstate counties, both before and after completion of the interstate. Contiguous counties performed much the same as interstate

Table 3 - Changes in Key Variables in Nebraska and Iowa Counties, 1958-78, Ten-Year Intervals

Type of county	1968 as a percentage of 1958: Population	EBI	Retail sales	1978 as a percentage of 1968: Population	EBI	Retail sales
Interstate	0.95	1.65	1.39	1.06	2.54	1.69
Contiguous	.96	1.65	1.45	1.06	2.33	1.48
Noncontiguous	.88	1.41	1.53	1.00	2.13	1.33

Noncontiguous counties lagged behind the performance of interstate counties, both before and after completion of the interstate. Contiguous counties performed much the same as interstate counties during 1958-68, but interstate counties substantially lead contiguous counties during 1968-78.

counties during 1958-68, but interstate counties substantially lead contiguous counties during 1968-78. The one area where noncontiguous counties' economic performance lead the other county types was in retail sales change for 1958-68. During this time, noncontiguous counties posted a growth rate of 153 percent, compared to change rates of 145 and 139 percent for contiguous and interstate counties, respectively. This pattern was reversed during 1968-78, when the rate of retail trade change for noncontiguous counties was the lowest of the three types of counties.

While the descriptive information shown in tables 1 through 3 suggests that interstate highways have fostered economic growth and slowed population decline in counties that contain interstates, no causal assertions can be made. The second part of the analysis provides a more formal test and focuses on cause-effect relationships.

Investigating Cause-Effect Relationships

Editor's note: Readers unfamiliar with regression analysis, the statistical technique this section relies on, can find a concise explanation of the technique in Susan Welch and John C. Comer's Quantitative Methods for Public Administration *(Homewood, IL: The Dorsey Press, 1983:180-232, esp. 209-210). Alternatively, readers may wish to move directly to "The Role of Population Size" (p. 16).*

The second data treatment uses multiple regression and specifies changes in EBI and retail sales as dependent variables in two separate equations. An equation for BPI is not included because this index includes population — a variable also used as an independent factor. Multiple regression is a statistical technique designed to predict levels of a dependent variable (for example, EBI) with levels of independent variables (for example, population size and interstate status). The dependent variable is seen as a linear function of the independent variables, with increases in, say, EBI, a function of one or more independent variables. Thus, one variable is regarded as

dependent on one or more other factors. The interval of change is 1963-86, a period starting before interstate completion (about 1969) and continuing through the last year for which data are available. The hypothesis is that for both dependent variables (EBI and retail sales), interstate status is a significant determinant of the percentage of economic growth for the 1963-86 period.

Changes in Effective Buying Income. Two multiple regression analyses were performed in order to assess the causal impact of interstate highways, relative to other factors, on economic growth. Table 4 shows the first equation, with the proportion change in EBI (from 1963 to 1986) as the dependent variable. The equation uses log population, percentage of population aged 18-34, and contiguity to the interstate as factors to predict changes in EBI that occurred during 1963-86.

The log of population is used to maintain a linear relationship among the variables. The 1963-86 period was chosen because it accounts for the latest year in which interstate highways were probably not a factor in economic growth (1963), and it includes the entire interval for which there are data. Age structure is drawn from the 1960 U.S. Census as a surrogate for the 1963 age structure.

Change in EBI, the dependent variable ([EBI 1986 - EBI 1963]/EBI 1963), was regressed on the other variables appearing in table 4. The first three independent variables — log of population, percentage of population 18-34 years of age, and percentage of population 50 years or older — control for structural conditions present at the beginning of the time interval. The two highway variables represent the effects of interstate highways and the potential spillover effect on contiguous counties. Other independent factors (for example, households) were excluded from the analysis because they were

Table 4 - Regression Equation for Change in EBI, 1963-86

Predictor variable	B	(Beta)	T	Significance
Log population, 1963	.271	(0.187)	.93	<.02
Percent population 18-34, 1960	.191	(.371)	3.72	<.001
Percent population 50+, 1960	.025	(.067)	.73	NS
D1 (Interstate)	.421	(.120)	1.50	NS
D2 (Contiguous)	.076	(.024)	.34	NS
Constant	-.131		-.08	NS

NS = Not a significant predictor.
Adjusted R square = 0.231; F = 12.46; p < .001.

During 1963-86 the presence of an interstate highway was not important to EBI growth. It is likely that pre-existing or other unmeasured factors fostered EBI increases.

so closely related to other variables included in the equation presented in table 4. As a result, they do not improve the ability to predict the dependent variable. Those factors with significance levels of <0.05 or <0.01 are statistically significant and are regarded as the most important predictors in the analysis.

The equation explains change in EBI only moderately well. About twenty-five percent of the variance in EBI change is explained by the five predictor variables listed in table 4. Except for percentage of population aged 50 and older, the effect of each variable is in the expected direction. In the case of population over 50 years of age, the direction of the relationship is positive — an older population is related to higher levels of EBI. However, only two variables have significant regression coefficients: log population ($p<.02$) and percentage of population aged 18-34 ($p<.001$). These two factors are most important in the first equation. In sum, these results show that during 1963-86 the presence of an interstate highway was not important to EBI growth. That is, it is likely that pre-existing or other unmeasured factors fostered EBI increases.

Changes in Retail Sales. Table 5 shows the results of a second regression equation for the same time interval, but here the dependent variable is

Table 5 - Regression Equation for Change in Retail Sales, 1963-86

Predictor variable	B	(Beta)	T	Significance
Log population, 1963	.044	(0.029)	0.40	NS
Percent population 18-34, 1960	.214	(.360)	4.04	<.001
Percent population 50+, 1960	-.002	(-.010)	-.058	NS
D1 (Interstate)	.659	(.179)	2.27	<.05
D2 (Contiguous)	-.103	(-.031)	-.45	NS
Constant	-1.37		-.77	NS

NS = Not a significant predictor.
Adjusted R square = 0.252; F = 13.89; p < 0.001.

Clearly, retail sales benefited from completion of the interstate highway.

change in retail sales. While the set of independent variables explains change in retail sales as well as it explains change in EBI, this equation is much different. While only two factors are once again statistically significant in this case, interstate highways have a marked effect on growth in retail sales. Overall, EBI is most affected by factors in place before construction of the interstate highways — population size, for example. Clearly, retail sales benefited from completion of the interstate highway.

The Role of Population Size

The third analysis examines interstate counties subdivided by size. The grouped counties are profiled as in the first analysis (three categories, all variables, 1958-86). Measures of change are computed for intervals consisting of preinterstate (1958-68) and postinterstate (1973-86). The purpose of this procedure is to test the assertion that interstate highways best benefit counties of at least a certain minimum size, because these counties can take advantage of the increased traffic and transportation convenience such highways offer. A county, then, must have a base number of retail stores, lending institutions, and other entities needed to absorb economic expansion.

While interstate highways are expected to have a positive overall effect on economic growth, their impact is expected to vary according to the size of the population in the county at the beginning of the interval. In other words, interstate counties with smaller populations will probably be less able to take advantage of the positive impact of the highway. To test this hypothesis, the 47 interstate counties were divided into three categories based on size of population in 1958. The three categories are 15,000 persons or less, 15,001-30,000, and 30,001 and more. These size categories conform roughly to size differentials used in previous analyses of highway-economic development linkages.

The economic measures and age data for the groupings are presented in table 6. As expected, EBI, retail sales, and BPI increase as county size increases. In addition, large counties have higher concentrations of younger persons (aged 18-34) and lower concentrations of older persons (aged 50 and older), suggesting a greater potential for continued economic growth.

Table 6 - Variables of Interest for Interstate Counties in Nebraska and Iowa, by Population Size, 1958-86*

Variable	Year 1958	1963	1968	1973	1978	1983	1986
Population 15,000 or Less (n = 14)							
EBI (thousand dollars)	13,905	15,424	22,564	33,478	53,815	68,795	95,493
Retail sales (thousand dollars)	10,097	12,510	15,216	21,992	27,891	43,122	48,068
BPI	.526	.465	.442	.433	.413	.341	.324
Age 18-34 (percent)	NA	NA	NA	NA	22.50	24.55	23.70
Age 50+ (percent)	NA	NA	NA	NA	33.60	32.85	32.85
Population 15,001-30,000 (n = 19)							
EBI (thousand dollars)	28,927	32,772	47,873	74,005	121,694	168,789	214,633
Retail sales (thousand dollars)	22,835	28,827	31,819	45,964	52,765	75,409	90,662
BPI	1.06	1.02	.992	.982	.834	.767	.711
Age 18-34 (percent)	NA	NA	NA	NA	23.50	25.50	24.60
Age 50+ (percent)	NA	NA	NA	NA	30.70	30.30	30.30
Population 30,001 and more (n = 14)							
EBI (thousand dollars)	151,763	196,226	285,403	355,824	551,969	910,338	1,101,973
Retail sales (thousand dollars)	111,944	128,868	142,337	199,863	359,403	494,369	639,830
BPI	5.30	5.30	5.03	4.53	4.50	4.24	3.81
Age 18-34 (percent)	NA	NA	NA	NA	29.55	31.75	30.55
Age 50+ (percent)	NA	NA	NA	NA	24.05	24.40	24.30

*All numbers are expressed as medians.

Table 7 shows growth ratios (1986/1958) for interstate counties by size groupings. The 6.86 value for EBI in counties with 15,000 or fewer residents is translated as a 686 percent inerease in EBI from 1958 to 1986. More populated interstate counties— even with their larger base figures— show greater EBI and retail sales increases while generating smaller BPI reductions. These differences are not likely to have occurred by chance.

Table 7 - Change Ratios (1986/1958) for Interstate Counties in Nebraska and Iowa

Variable	Population 15,000 or less (n = 14)	15,001-30,000 (n = 19)	30,001 and more (n = 14)
EBI*	6.86	7.41	7.26
Retail sales	4.76	3.97	5.71
BPI*	.62	.67	.72

*Statistically significant at the .01 level.

A critical mass of social and economic structure is required to take full advantage of the opportunities that interstate highways offer.

Table 8 shows growth during the 1973-86 period (after completion of the interstate highways). More dramatic EBI and retail sales differentials can be seen, along with a smaller BPI reduction, although counties with 15,001-30,000 residents do no better than small counties. When comparing large interstate counties with small interstate counties, the growth edge that large counties had during 1973-86 was 310 compared to 285 percent for EBI, 320 compared to 218 percent for retail sales, and 84 compared to 75 percent for BPI. These data support the assertion that a critical mass of social and economic structure is required to take full advantage of the opportunities that interstate highways offer.

Table 8 - Change Ratios (1986/1973) for Interstate Counties in Nebraska and Iowa

Variable	Population		
	15,000 or less (n = 14)	15,001-30,000 (n = 19)	30,001 and more (n = 14)
EBI*	2.85	2.90	3.10
Retail sales	2.18	1.98	3.20
BPI*	.75	.72	.84

*Statistically significant at the .01 level.

Policy Implications

The key issues focused upon in this chapter concern the role of interstate highways in the economic growth of counties in Nebraska and Iowa. While the descriptive analysis indicates substantial differences in performance, and one regression analysis indicates a significant interstate highway effect, the impact is clearly greater in more populous counties. This point is important given the passage of LB 632 by the Nebraska legislature. In sections 23 and 24 of this bill, ". . . the development of a system of expressways, which shall include, but not be limited to, a north-south expressway . . ." is identified. Factors to be considered in locating the road include economic development

needs and projected demographic trends. During 1988, numerous newspaper articles have indicated that Nebraskans are lobbying to have the expressway go through their towns.

Factors to Consider in Locating a North-South Expressway

Connect Major Population Points. Before siting the north-south expressway, three factors must be considered. First, the cities and towns that the highway will connect should be identified clearly. The U.S. interstate system was designed to connect major population centers. Segments originate and terminate at these centers. It is unrealistic to assume that a north-south expressway in Nebraska will carry requisite traffic flows if there are no destination points of interest to travelers and shippers. An extension of State Highway 281, for example, ends at St. Francis Lake in South Dakota, which may not be a point of interest to many travelers or freight carriers. Even the notion of a quick intersection with Interstate 90 in South Dakota does not seem to warrant expansion of an existing highway. Using existing highways and changing their direction is an option that should be considered.

It is unrealistic to assume that a north-south expressway in Nebraska will carry requisite traffic flows if there are no destination points of interest to travelers and shippers.

Locate Along Corridors Where Population is Largest. The second factor to be considered is the impact that an interstate highway would have on economic development. Carrying forward the argument that a county must have at least a threshold population of possibly 30,000 to benefit from an interstate highway, it is unlikely that many counties in Nebraska would benefit from such construction. Three north-south highways in Nebraska which could be upgraded to expressway status, and the counties in which they are located, are listed in table 9. Most of these counties do not contain populations large enough to realize the advantages of the economic growth opportunities which a four-lane expressway might make possible. Of the twenty-three counties listed, only five (twenty-two percent) have a population of 30,000 or more. Along Highway 81, only two counties have a population of 30,000 or more. Just as important, however, is the large number of counties with populations of less than 10,000 (fourteen, or sixty-one percent). Presently, many of these counties are experiencing population loss and population aging, both of which further exacerbate the problem of

Carrying forward the argument that a county must have at least a threshold population of possibly 30,000 to benefit from an interstate highway, it is unlikely that many counties in Nebraska would benefit from such construction.

Table 9 - Counties Intersected by Potential Expansion Highways, Nebraska, 1988

Highway 81		Highway 281		Highway 83	
County	Population	County	Population	County	Population
Thayer	7,500	Webster	4,700	Cherry	6,900
Fillmore	7,700	Adams	30,300	Thomas	1,000
York	15,000	Hall	50,100	Logan	1,000
Polk	6,100	Howard	6,800	Lincoln	35,100
Butler	9,200	Greeley	3,400	Frontier	3,600
Platte	30,000	Wheeler	1,000	Red Willow	12,900
Madison	33,600	Holt	14,000		
Pierce	8,500	Boyd	3,300		
Cedar	11,100				

development. These data indicate that the prospects for economic growth in many of the counties potentially affected by highway expansion are not good.

Consider the Difference Between Interstates and Limited Access Highways. Finally, the differences between interstate highways and limited access highways must be considered. Traffic flows on an interstate highway are unimpeded, even in metropolitan areas. The consistency of flow has made the interstate highway system highly attractive. Limited access highways (or expressways) as proposed in LB 632 do not provide for this consistency of flow. In fact, the three highways identified (81, 281, and 83) bisect many communities. The remitting flow is restricted on limited access highways, and the advantages of expressways are not comparable to those of interstate highways. Therefore, the economic growth dynamics might not be consistent with the findings here.

While some counties would benefit from such expansion, at least through the jobs created during the construction phase of the project, the overall long-term benefits to the state and the communities in terms of economic growth and development are likely to be disappointing.

Given the uncertainty about location of the highway expansion, along with the poor prospects for economic development of many of the counties potentially affected, the decision to expand any highway must be carefully assessed at this time. While some counties would benefit from such expansion, at least through the jobs created during the construction phase of the project, the overall long-term benefits to the state and the communities in terms of economic growth and development are likely to be disappointing.

Interstate Versus Limited Access Highways

Carefully and deliberately planned, a north-south interstate highway in Nebraska could be of substantial significance to the economic future of the communities through which it passes and which it connects. The findings presented in this chapter indicate that the interstate highways of Nebraska and Iowa have improved the counties with exchanges. The interstate highways provide an advantage in the drive toward economic improvement.

It must be understood that the economic gains that have been realized in Nebraska and Iowa have been associated with *interstate highway completions*. The proposed highway construction in Nebraska is for a *limited access highway*. While there are no direct measures of the economic gains associated with a limited access highway in this chapter, one suggestion is that a new north-south expressway should follow the same conceptual foundations associated with the interstate system to realize the greatest economic gains.

Construction of a limited access highway may not yield economic gains equivalent to those that would be realized with the construction of an interstate highway. If a decision is made to complete a limited access highway, this segment should reflect as many of the characteristics of an interstate system as possible. Certainly it should be associated with the counties with the largest population, with careful consideration toward meeting the threshold of 30,000. Furthermore, it should connect major population centers in order to maximize commercial and personal travel between these cities. Likewise,

this limited access highway should circumvent (rather than bisect) communities but also provide exchanges to them.

Highway construction could become the centerpiece of an economic development program for the state of Nebraska. First, significant economic improvement would be realized through the activities of construction. This highway also would provide access and allow progress in counties and communities that currently do not share the advantages of an interstate system. In turn, this would make the region more attractive for investment and industrial development and would improve community living.

If a decision is made to complete a limited access highway, this segment should reflect as many of the characteristics of an interstate system as possible.

Highway development should also enable the state legislature to identify and focus on communities which would be designated for economic support and growth. Focusing state investments, projects, and regional offices into these communities would encourage their growth and improve their economic performance (Deichert and Smith 1988). An important factor here is that a state policy of four-lane highway construction should be followed by the development of additional state policies and projects that would complement the investments.

Endnotes

1. Effective buying income (EBI) = total county personal income less personal tax and nontax payments. Retail sales = net sales minus refunds and allowances for returns for establishments engaged primarily in retail trade. Buying power index (BPI) = a weighted index that combines retail sales, total population, and EBI and expresses it as a percentage of the U.S./Canada potential to buy. It is calculated by giving a weight of five to the county's percentage of U.S./Canada EBI, three to its percentage of retail sales, and two to its percentage of population. The total of the weighted percentages is divided by 10 to produce the BPI.

2. Population = total county population. Households = number of county households. Percent population 18-34 = percent of county population aged 18-34 years. Percent population 50+ = percent of county population aged 50 years and older. Interstate county = a county with an interstate highway and an interstate exchange completed about 1970. Highway 218 in Iowa is not an interstate highway, but it has interstate characteristics and was classified as one. Forty-seven Nebraska and Iowa counties met this classification. Contiguous county = a county contiguous to a county containing an interstate highway exchange but with none itself. Seventy-one Nebraska and Iowa counties met this classification. Noncontiguous county = a county neither containing an interstate highway nor contiguous to a county containing an interstate exchange. Seventy-four Nebraska and Iowa counties met this classification.

3. BPIs are multiplied by 100 for comparison purposes.

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RURAL-URBAN LINKAGES: AN ASSESSMENT OF STATE GOVERNMENT REVENUE AND EXPENDITURE PATTERNS

6

Jerome A. Deichert

Taxing and spending decisions made by Nebraska's policy makers have different impacts on Nebraska's metropolitan and nonmetropolitan counties, even though these impacts may be unintended. Furthermore, Nebraska's counties are linked through the operation of state government. Through their fiscal actions policy makers can strengthen these links or cause them to deteriorate. Policy makers should begin to incorporate the geographic dimensions of their decisions into their decision making processes, especially as they are faced with issues concerning property tax relief and rural development. A data set describing the geographic distribution of Nebraska state government taxes and expenditures is offered here for review.

Introduction

In carrying out its functions, Nebraska's state government shifts income and resources among regions in the state. It collects taxes from individuals and businesses, receives intergovernmental transfers from both the federal government and local governments, receives fees and charges from users of some services, and takes in other miscellaneous revenues. These revenues are then paid out as wages and salaries to state employees, operating expenditures, capital outlays, and transfers to individuals, businesses, and local governments.

It is important for Nebraska policy makers to recognize how spending and taxing decisions affect substate areas. It is unlikely that the impacts of taxing and spending will be equal around the state, although the differences may be unintentional.

This chapter provides information on how state government revenue and spending patterns vary across Nebraska. To highlight these patterns, four types of counties are defined according to the size of the largest city they contain. Analysis of the data indicates that there are indeed variations in the extent to which revenues are drawn from or expenditures accrue to certain

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types of counties. Knowledge of how such changes will affect urban and rural Nebraska can help policy makers who are considering changes in Nebraska's tax or expenditure structure.

Past Studies

Nebraska's state government has recognized the need to study the geographic incidence of taxation; that is, how many tax dollars are paid by residents of the various regions in Nebraska. In 1979, the Nebraska Unicameral's Revenue Committee recommended that this aspect of taxation should be included in a broad tax ineidence study to be "undertaken some time in the future" (Nebraska Legislative Council 1979). The recommended study, however, would not include the state's expenditure system.

In 1981, the Revenue Committee prepared a study that analyzed the tax and revenue structure data of Nebraska. The purpose was "to determine the most effective means of providing property tax relief by shifting the property tax burden to other forms of taxation" (Nebraska Legislative Council 1981). The study measured the county distribution of income, sales and property taxes and looked at the distribution of state funds to local governments. The study did not analyze the relationship between taxes and expenditures among the counties. It also ignored other types of state government expenditures, such as wages and salaries paid to state employees and public assistance payments that have impacts on local areas. Another weakness of the study was that sales taxes were allocated to the county where purchases were made, not where the income for those purchases originated.

Perhaps it is easier to recognize taxes paid than government spending. We are reminded of taxes each time we make purchases or look at our pay stubs.

The *Nebraska Comprehensive Tax Study* (Wasylenko and Yinger 1988) provides a detailed analysis of Nebraska's fiscal system. It contains sections on tax incidence for households and businesses, but it does not attempt to measure the geographic incidence of taxes. And despite its broad coverage of revenue, the study generally neglects expenditures.

Perhaps it is easier to recognize taxes paid than government spending. We are reminded of taxes each time we make purchases or look at our pay stubs. State government expenditures may not be as recognizable because they are usually less personal. However, expenditures also have differential impacts throughout the state.

State-operated facilities can be considered basic industries for some communities. State offices and installations provide jobs and income to local residents, attracting wages and salaries which bring back tax dollars that had been taxed away by a higher level of government. In Lincoln, the presence of the state capitol and the University of Nebraska-Lincoln makes state government obvious. But the state has a presence in every county in Nebraska; every county has at least one state employee. And virtually every county has residents who receive transfer payments and other types of public assistance.

The state also distributes funds to local governments. Some go to projects such as streets and highways, while some are in the form of direct aid to local subdivisions, such as school districts. For some communities, the amount of state funds received exceeds local property tax collections. But in general, state funds distributed to local governments average more than one-third the amount of property taxes collected (Nebraska Department of Revenue 1986).

Understanding the distribution of both taxes and expenditures is necessary in order to measure the impact of the state's fiscal system on the various substate areas. This understanding can then be used to help evaluate some of the state's policy options. State government's taxing and spending patterns can either support or undermine other state goals. For example, increasing sales taxes in order to reduce property taxes used for the support of local education may have varying impacts around the state. Likewise, increasing the income tax in order to pay for expanded income maintenance payments will have different impacts in substate areas. The effects would be different in terms of which areas pay the increased taxes as well as which areas benefit from the increased spending.

As another example, the research in this chapter shows that rural counties receive more state aid than do counties with large cities, relative to their population and income. If the state chose an economic development strategy which strengthened the economic capacities in some of the state's larger communities, it would probably require shifts in current taxing and/or spending patterns to ensure policies consistent with such a growth center strategy.

Urban-Rural Connections

Another current area of attention is the belief that Nebraska is disconnecting; that its urban and rural areas are becoming less interdependent. In its reports on Nebraska's future, SRI International has suggested that "Nebraska is increasingly becoming uncoupled — urban areas from rural areas— at a time when it can ill afford to fragment its resources" (1988; 38). According to the report, *New Seeds for Nebraska*, "Omaha and Lincoln have become less dependent on the rest of the state, and many rural areas in the

west and north-central parts of the state have little interaction with the state's urban centers." It suggests that Nebraska's leadership must move to improve urban-rural relationships, or risk not achieving consensus on the state's future.

As discussed earlier, however, Nebraska's substate areas are connected through the state's tax and expenditure system. A primary purpose of this chapter, therefore, is to develop a method to measure the distribution of taxes paid and expenditures received between the state's urban and rural areas.

A major product of this study is a methodology which produces a set of data to examine the current distribution of state government taxes and expenditures.

Obviously, pecuniary measures provide an incomplete picture of how the state is linked by its government, but it is beyond the scope of this chapter to define all these links. In addition, this research is not intended to be a comprehensive analysis of the state's fiscal system, nor is it intended to enumerate all the costs and benefits associated with the operation of Nebraska's state government. Instead it focuses on several of the major tax and expenditure categories. Taxes included for discussion are sales and use tax, personal income tax, corporate income tax, sales tax on motor vehicles, and taxes on tobacco and alcohol. The expenditure categories include wages and salaries for state government employees, transfer payments and other assistance to individuals, and transfers to local governments.

A major product of this study is a methodology which produces a set of data to examine the current distribution of state government taxes and expenditures. This data set also can be used to evaluate future policy alternatives. Although the data in this chapter are for 1985, the methodology easily can be applied to other years.

Definition of County Groups

To better understand the distribution of taxes and expenditures in Nebraska, the state first must be divided into collections of counties. Counties are used as building blocks because they are a level of geography for which information generally is available.

Before dividing the state into its rural and urban components, urban and rural counties must be defined. The U.S. Bureau of the Census defines the urban population as all persons living in places of 2,500 or more inhabitants

or in the closely settled areas, incorporated or unincorporated, which surround a large city (sometimes referred to as urban fringe). The remainder of the population is classified as rural. But because counties can have both urban and rural components, this definition does not allow an accurate classification of counties.

A measure that does allow county classification, and one used in this chapter, is the Metropolitan Statistical Area (MSA). Briefly, an MSA is a county or a group of contiguous counties which contains at least one city of 50,000 or more residents. To be included in an MSA, contiguous counties must be socially and economically integrated with the central city. Nebraska contains three MSAs, two of which are shared with Iowa. The three MSAs and the Nebraska counties contained in each are: Omaha (Douglas, Sarpy and Washington counties); Lincoln (Lancaster County); and Sioux City (Dakota County). The remaining counties in the state are considered to be nonmetropolitan.

The metropolitan-nonmetropolitan classification scheme also has problems, because it ignores the vast differences among nonmetropolitan counties. To take these into account, the state's nonmetropolitan counties can be further divided by size of largest city. The divisions for the state, as shown in figure 1, then become:

1. Metropolitan counties;
2. Nonmetropolitan counties where the largest city has 10,000 or more persons (referred to as large-city counties);
3. Nonmetropolitan counties where the largest city has between 2,500 and 9,999 persons (referred to as small-city counties); and
4. Nonmetropolitan counties where the largest city has fewer than 2,500 persons (referred to as rural counties — they also meet the Census Bureau's definition of rural).

Overview of Nebraska's Fiscal Structure

Any discussion of the distribution of Nebraska state government taxes and expenditures should begin with a review of the major components of the state's fiscal structure. Table 1 presents expenditure and revenue data drawn from the U.S. Census Bureau's *State Government Finances, 1986*. As shown, Nebraska receives revenues from a variety of sources, with approximately one-half (forty-eight percent) coming from taxes. The remaining major sources include intergovernmental revenue (primarily from the federal government), 25.3 percent; current charges for provided services, 11.1 percent; miscellaneous revenue including interest earnings, 8.4 percent; and insurance trust revenue including employee retirement, 7.3 percent.

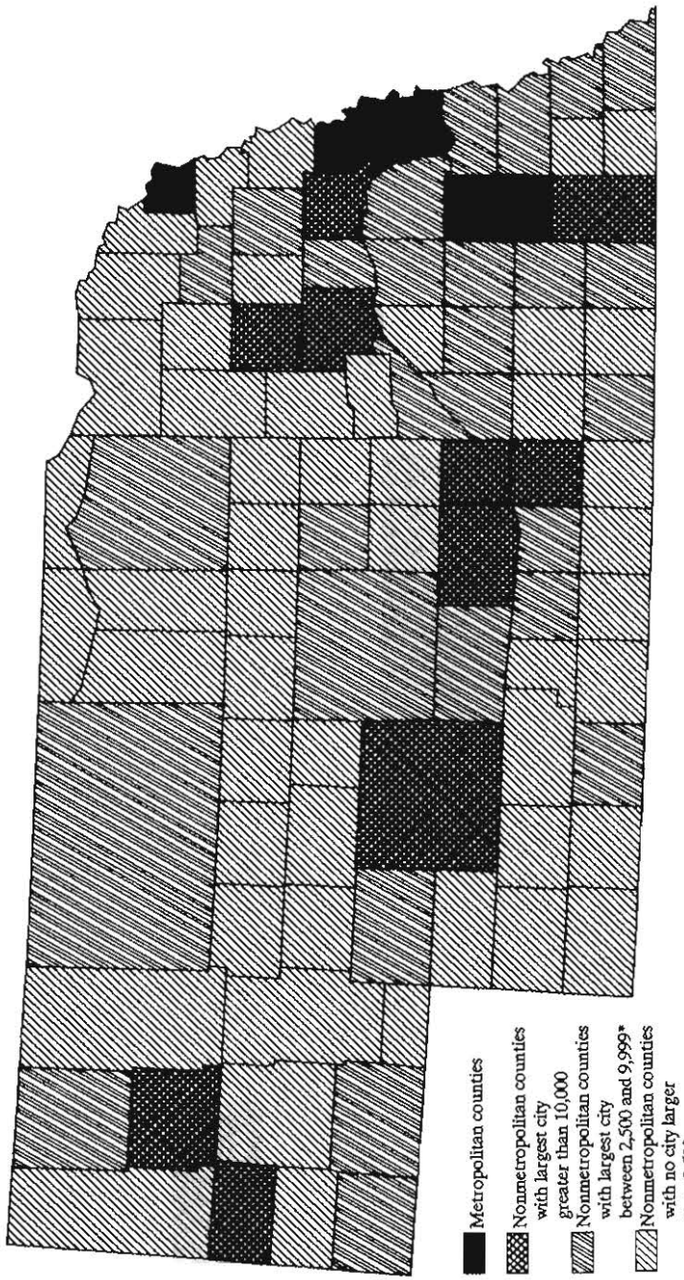


Figure 1 - Nebraska's Counties Grouped by Size of Largest City in 1985

*Includes Butler and Nuckolls counties, although David City and Superior dipped below 2,500 in 1985.

For reference map with county names, see page xiii.

Table 1 - State Government Revenue and Expenditure in Nebraska and the United States, FY 1985-86

	-Nebraska-			-United States Total-	
	Amount (Thousand Dollars)	Percent of Total Revenue	Percent of Total Taxes	Percent of Total Revenue	Percent of Total Taxes
Total Revenue	2,334,204	100.0		100.0	
General revenue	2,164,881	92.7		81.8	
Intergovernmental revenue	590,242	25.3		20.5	
From federal government	561,408	24.1		19.3	
General revenue from own sources	1,574,639	67.5		61.3	
Taxes	1,119,382	48.0	100.0	47.4	100.0
General sales	349,884	15.0	31.3	15.5	32.8
Motor fuel	146,546	6.3	13.1	2.9	6.2
Motor vehicle license	49,381	2.1	4.4	1.6	3.4
Income	406,387	17.4	36.3	17.8	37.6
Individual	351,828	15.1	31.4	14.0	29.6
Corporation	54,559	2.3	4.9	3.8	8.1
Other taxes	167,184	7.2	14.9	9.5	20.0
Current charges	258,873	11.1		6.2	
Education	139,610	6.0		3.6	
Hospitals	81,468	3.5		1.3	
Miscellaneous revenue including interest earnings	196,384	8.4		7.7	
Insurance trust revenue, including employee retirement	169,323	7.3		17.0	
Other revenue	0	0.0		1.2	

	-Nebraska-			-United States Total-	
	Amount (Thousand Dollars)	Percent of Total Expenditure	Percent of Direct Expenditure	Percent of Total Expenditure	Percent of Direct Expenditure
Total expenditure	2,204,924	100.0		100.0	
Intergovernmental	537,476	24.4		31.1	
To local governments	536,133	24.3		30.6	
Current operation	1,149,610	52.1		43.9	
Capital outlay	248,500	11.3		8.1	
Other expenditures	269,338	12.2		16.9	
Exhibit: Expenditure for salaries and wages	601,469	27.3		17.9	
Total direct expenditure by function	1,667,448	75.6	100.0	68.9	100.0
General expenditure	1,584,446	71.9	95.0	57.6	83.7
Current expenditure	1,335,946	60.6	80.1	49.9	72.5
Capital outlay	248,500	11.3	14.9	7.7	11.2
Education services	412,580	18.7	24.7	13.8	20.0
Social services and income maintenance	524,997	23.8	31.5	19.9	28.9
Transportation	269,836	12.2	16.2	7.4	10.7
Public safety	83,324	3.8	5.0	3.7	5.4
Environment and housing	86,141	3.9	5.2	2.4	3.5
Governmental Administration	52,772	2.4	3.2	2.9	4.2
Other general expenditures	154,796	7.0	9.3	7.5	10.9
Insurance trust expenditure, including employee retirement	83,002	3.8	5.0	9.4	13.6
Other direct expenditure	0	0.0	0.0	1.9	2.7

Source: U.S. Bureau of the Census, *State Government Finances, 1986.*

Table 1 also presents the average revenue structure for state governments in the United States. It shows that Nebraska's state government receives relatively more revenues from intergovernmental sources, current charges, and miscellaneous revenue; and relatively less from insurance trust and other revenue sources, compared to other states. The percentage of the state's revenues coming from taxes is approximately the same as the national average.

The state's two major taxes— general sales and income — have approximately the same relative importance for Nebraska as for the nation. Revenues from motor fuel taxes and motor vehicle license fees are higher in Nebraska, but other taxes generate proportionately less revenues here than the average of all states.

Table 1 also reviews the expenditure side of the Nebraska's fiscal system.[1] Slightly more than half of the state's expenditures go to support current operation, of which the largest amount goes to wages and salaries (27.3 percent of all expenditures). Intergovernmental transfers (mostly to local governments) comprise 24.4 percent of expenditures; capital outlay accounts for 11.3 percent; and other expenditures account for 12.2 percent.

Compared to the national average, the percentage of Nebraska's expenditures for current operation, especially wages and salaries, are higher. Nebraska's proportion of transfers to local governments is lower.

Looking at Nebraska's direct expenditures by function shows that social services account for 31.5 percent. This is followed by education services (24.7 percent) and transportation (16.2 percent).

Distribution of Taxes and Expenditures

A problem arises when trying to analyze the flow of revenues and expenditures among the various areas of the state, because much of the data lack county identification. Even for those data that are available on a county basis, the county of collection or activity may not be the county of origin or destination. For example, sales and use taxes are reported at the county where the sales took place, but some of the purchasers live in other counties. Thus, when a resident of St. Paul makes a purchase in Grand Island, the sales tax paid is reported by Hall County even though it was paid by a Howard County resident.

Clearly, some taxes reported by urban areas are actually paid by residents of rural areas. To the extent that a county attracts sales, its sales taxes reflect taxes paid both by its residents and by residents of other counties. Sales tax figures for the counties which lose sales understate taxes paid by their residents. Unless taxes can be allocated to the county of residence of the person or household that pays the taxes, there will be an inaccurate picture of the urban-rural distribution of taxes in Nebraska.

Other taxes, collected at the state level, are not reported by county. Taxes in this category include corporate income tax and many of the miscellaneous taxes, such as those on tobacco and liquor. In order to allocate these taxes to regions, indirect procedures must be used. These are outlined later in the chapter.

An Overview of the Data Set

Table 2 contains an estimate of Nebraska taxes collected, by county of origin; and expenditures, by county of destination. Each tax and expenditure category is analyzed separately in this section. Table 2 also expresses the substate-area tax and expenditure values as percentages of the respective state totals. For comparative purposes, total personal income and total population for each region are included with taxes and expenditures. When the data set was compiled, 1985 was the latest year for which some of the data were available. In order to maintain consistency, all data analyzed in this chapter are for calendar or fiscal year 1985.

The data in table 2 can be analyzed several ways. First, the distribution of a tax or expenditure item can be measured by reading across a row. For example, in the bottom half of the table, 51.6 percent of the sales tax on motor vehicles is collected in metropolitan areas; 48.4 percent is collected from nonmetropolitan counties; 19.1 percent comes from counties with large cities; counties with small cities provide 18.0 percent; and rural counties account for 11.2 percent.

Second, the shares of taxes or expenditures within a set of counties can be compared by reading down a column. This type of comparison shows that counties with small cities account for a low of 13.0 percent of the corporate income tax and a high of 21.6 percent of the state's tobacco tax.

Viewed in isolation, these percentages present an incomplete picture. Taxes paid and expenditures received by counties are also related to the areas' incomes and population sizes. A final method of comparison, therefore, views the area's share of taxes or expenditures in relation to its share of personal income or population. For example, rural counties account for 12.5 percent of Nebraska's personal income and 13.4 percent of its population but receive 26.5 percent of the state aid to counties and only 4.3 percent of the wages and salaries paid to state employees.

To facilitate comparisons of taxes or expenditures to income and population, table 3 shows each area's taxes generated and expenditures received as a ratio to its shares of income and population. For example, from table 2 we see that Nebraska's rural counties have individual income tax liabilities totaling 8.2 percent of the total for the state. Table 2 also shows that residents in the rural counties earn 12.5 percent of the state's personal income, and they account for 13.4 percent of the state's population. Compared to its share of

Table 2 - Selected Taxes and Expenditures for Groups of Counties in Nebraska, 1985

	Metropolitan Counties	-Nonmetropolitan Counties- Total	Large-City Counties	Small-City Counties	Rural Counties
		-Thousand Dollars-			
SELECTED TAXES					
Estimated sales tax	101,595	112,195	44,512	40,641	27,042
Sales tax on motor vehicles	19,076	17,898	7,080	6,666	4,152
Individual income tax liability	169,364	126,033	56,461	45,206	24,367
Estimated corporate income tax	41,585	26,000	13,180	8,805	4,014
Estimated tobacco sales tax	8,440	11,934	4,665	4,392	2,877
Estimated liquor sales tax	6,811	7,061	2,827	2,583	1,651
Total taxes	346,872	301,122	128,725	108,293	64,104
SELECTED EXPENDITURES					
Total state aid*	154,850	200,718	70,969	73,922	55,827
State aid to counties	16,600	47,596	11,701	18,885	17,010
State aid to cities and villages	34,723	38,820	15,957	14,182	8,681
State aid to townships	4	112	21	51	40
State aid to fire districts	22	52	12	24	15
State aid to misc. districts	245	132	42	58	32
State aid to school districts	96,907	102,341	39,918	36,662	25,761
Additional state aid	6,350	11,664	3,318	4,060	4,287
State government wages paid	367,849	142,150	81,566	38,558	22,026
Public assistance and related programs*	144,585	138,443	57,698	46,178	34,567
Aid to dependent children	36,980	25,128	12,589	7,215	5,324
State supplement	2,435	2,743	1,260	931	551
Food stamps	24,436	22,819	10,603	7,139	5,076
Medicaid	75,618	83,101	31,299	29,296	22,506
Adult & family contracted services	5,114	4,652	1,946	1,597	1,110
Total expenditures	667,283	481,310	210,233	158,658	112,419
Total personal income	10,327,000	10,579,000	3,996,000	3,970,000	2,613,000
		-Persons-			
Population	746,600	858,700	325,200	318,100	215,400
		-Percent of State Total-			
SELECTED TAXES					
Estimated sales tax	47.5	52.5	20.8	19.0	12.6
Sales tax on motor vehicles	51.6	48.4	19.1	18.0	11.2
Individual income tax liability	57.3	42.7	19.1	15.3	8.2
Estimated corporate income tax	61.5	38.5	19.5	13.0	5.9
Estimated tobacco sales tax	41.4	58.6	22.9	21.6	14.1
Estimated liquor sales tax	49.1	50.9	20.4	18.6	11.9
Total taxes	53.5	46.5	19.9	16.7	9.9
SELECTED EXPENDITURES					
Total state aid*	43.6	56.4	20.0	20.8	15.7
State aid to counties	25.9	74.1	18.2	29.4	26.5
State aid to cities and villages	47.2	52.8	21.7	19.3	11.8
State aid to townships	3.5	96.5	18.2	43.9	34.3
State aid to fire districts	29.5	70.5	16.4	33.3	20.9
State aid to misc. districts	64.9	35.1	11.2	15.3	8.5
State aid to school districts	48.6	51.4	20.0	18.4	12.9
Additional state aid	35.2	64.8	18.4	22.5	23.8
State government wages paid	72.1	27.9	16.0	7.6	4.3
Public assistance and related programs*	51.1	48.9	20.3	16.3	12.2
Aid to dependent children	59.5	40.5	20.3	11.6	8.6
State supplement	47.0	53.0	24.3	18.0	10.6
Food stamps	51.7	48.3	22.4	15.1	10.7
Medicaid	47.6	52.4	19.7	18.5	14.2
Adult & family contracted services	52.4	47.6	19.9	16.3	11.4
Total expenditures	58.1	41.9	18.3	13.8	9.8
Total personal income	49.4	50.6	19.1	19.0	12.5
Population	46.5	53.5	20.3	19.8	13.4

*State fiscal year 1985-86.

Sources: Nebraska Department of Labor, *1985 Nebraska Employment and Wages*; Nebraska Department of Revenue, *Annual Report 1985, Annual Report 1986*, and *State Funds Distributed to Local Government Subdivisions*; Nebraska Department of Social Services, *Annual Report 1986*; U.S. Bureau of Economic Analysis, *Local Area Personal Income*; U.S. Bureau of Labor Statistics, "Consumer Expenditure Survey."

Table 3 - Ratios of Income and Population to Selected Taxes and Expenditures for Groups of Counties in Nebraska, 1985

	Metropolitan Counties	-Nonmetropolitan Counties- Total	Large-City Counties	Small-City Counties	Rural Counties
		-Ratio to Income-			
SELECTED TAXES					
Estimated sales tax	0.96	1.04	1.09	1.00	1.01
Sales tax on motor vehicles	1.04	0.96	1.00	0.95	0.90
Individual income tax liability	1.16	0.84	1.00	0.81	0.66
Estimated corporate income tax	1.25	0.76	1.02	0.69	0.48
Estimated tobacco sales tax	0.84	1.16	1.20	1.14	1.13
Estimated liquor sales tax	0.99	1.01	1.07	0.98	0.95
Total taxes	1.08	0.92	1.04	0.88	0.79
SELECTED EXPENDITURES					
Total state aid*	0.88	1.12	1.04	1.09	1.26
State aid to counties	0.52	1.47	0.95	1.55	2.12
State aid to cities and villages	0.96	1.04	1.14	1.02	0.94
State aid to townships	0.07	1.91	0.95	2.31	2.75
State aid to fire districts	0.60	1.39	0.86	1.75	1.67
State aid to misc. districts	1.31	0.69	0.59	0.81	0.68
State aid to school districts	0.98	1.02	1.05	0.97	1.03
Additional state aid	0.71	1.28	0.96	1.19	1.90
State government wages paid	1.46	0.55	0.84	0.40	0.35
Public assistance and related programs*	1.03	0.97	1.06	0.86	0.98
Aid to dependent children	1.21	0.80	1.06	0.61	0.69
State supplement	0.95	1.05	1.27	0.95	0.85
Food stamps	1.05	0.95	1.17	0.80	0.86
Medicaid	0.96	1.03	1.03	0.97	1.13
Adult & family contracted services	1.06	0.94	1.04	0.86	0.91
Total expenditures	1.18	0.83	0.96	0.73	0.78
		-Ratio to Population-			
SELECTED TAXES					
Estimated sales tax	1.02	0.98	1.03	0.96	0.94
Sales tax on motor vehicles	1.11	0.90	0.95	0.91	0.84
Individual income tax liability	1.23	0.80	0.94	0.77	0.61
Estimated corporate income tax	1.32	0.72	0.96	0.66	0.44
Estimated tobacco sales tax	0.89	1.09	1.13	1.09	1.05
Estimated liquor sales tax	1.06	0.95	1.01	0.94	0.89
Total taxes	1.15	0.87	0.98	0.84	0.74
SELECTED EXPENDITURES					
Total state aid*	0.94	1.06	0.99	1.05	1.17
State aid to counties	0.56	1.39	0.90	1.48	1.97
State aid to cities and villages	1.02	0.99	1.07	0.97	0.88
State aid to townships	0.08	1.80	0.90	2.22	2.56
State aid to fire districts	0.63	1.32	0.81	1.68	1.55
State aid to misc. districts	1.40	0.66	0.55	0.77	0.64
State aid to school districts	1.05	0.96	0.99	0.93	0.96
Additional state aid	0.76	1.21	0.91	1.14	1.77
State government wages paid	1.55	0.52	0.79	0.38	0.32
Public assistance and related programs*	1.10	0.91	1.00	0.82	0.91
Aid to dependent children	1.28	0.76	1.00	0.59	0.64
State supplement	1.01	0.99	1.20	0.91	0.79
Food stamps	1.11	0.90	1.11	0.76	0.80
Medicaid	1.02	0.98	0.97	0.93	1.06
Adult & family contracted services	1.13	0.89	0.98	0.83	0.85
Total expenditures	1.25	0.78	0.90	0.70	0.73

*State fiscal year 1985-86.

Sources: *See* Table 2.

personal income, therefore, the rural counties' income tax liability is a ratio of 0.66 (8.2 + 12.5). Compared to population the ratio is 0.61 (8.2+ 12.5). To clarify the measure used:

1. If an area's share of taxes or expenditures is equal to its income or population share, then the ratio is 1.0.
2. If an area's share of taxes or expenditures is greater than its income or population share, then the ratio exceeds 1.0. Taxes are drawn from the area or expenditures are attracted to the area.
3. If an area's share of taxes or expenditures is less than its income or population share, then the ratio is less than 1.0. Residents of the area pay less taxes or receive less expenditures than its income or population suggests.

This method of comparing relative shares of taxes and expenditures to personal income or population allows for the analysis of individual categories and does not require a complete regional allocation of all taxes and expenditures. Therefore, an individual tax or expenditure category can be excluded without harming the analysis.

Selected Taxes

Taxes, which represent fifty percent of Nebraska's state revenues, are the only revenue source included in this analysis. Additional Nebraska state government revenues come from intergovernmental transfers, current charges, insurance trust, and miscellaneous sources. Taxes included here are individual income taxes, corporate income taxes, sales and use taxes, sales tax on motor vehicles, and liquor and tobacco taxes. These represent the majority of the taxes collected by the state government

Estimated Sales Tax. Sales taxes cannot be measured directly by county of origin, because the data are available only for county of purchase. To determine estimates of taxes paid by a county group, an allocation method based on income groups and taxable expenditures for those income groups was used. The income groups were the five groupings reported by the Nebraska Department of Revenue in its annual reports: less than $6,000; $6,000 to $12,000; $12,000 to $18,000; $18,000 to $30,000; and $30,000 and over. Taxable expenditures by income group were compiled from 1985 Consumer Expenditure Survey (CES) information, which is released by the U. S. Bureau of Labor Statistics and contains detailed expenditure and income data for a sample of households in the United States.

Household data from the CES are classified by size of community. Three groups of communities identified by the CES roughly conform to

metropolitan counties, large- and small-city counties, and rural counties. Using the CES, taxable household expenditures were identified, summed, and averaged for each income group in each community group.

Nebraska's taxable spending for each set of counties in Nebraska was estimated by multiplying the average taxable household expenditures (calculated from the CES) by the actual number of households reported by the Nebraska Department of Revenue. There was one calculation for each income class within each county group.

To determine total taxable expenditures for a county group, the expenditures were summed over all income classes. County group totals were expressed as percentages of the state total, and Nebraska's 1985 sales and use tax was multiplied by the percentages. The result is an estimate of sales taxes paid by the residents of each county group in the state.

Approximately 75 percent of Nebraska's sales taxes are paid by households; the remainder are paid by businesses (Due and Fairchild 1988). Therefore, the sales and use tax numbers reported in table 2 are 75 percent of the actual sales and use taxes reported in the Nebraska Department of Revenue's *Annual Report 1986.*

From table 2 it can be seen that the shares of sales taxes for metropolitan and nonmetropolitan areas are roughly the same as their shares of income and population. This fact is borne out by table 3, which shows that the ratios are all close to 1.0, with the exception of large-city counties. When sales taxes are compared to personal income, large-city counties have the highest ratio (1.09), followed by rural counties (1.01), small-city counties (1.00), and metro counties (0.96). Comparing sales taxes to population, large-city counties again lead the way with a ratio of 1.03, and they are followed by metro counties, small-city counties, and rural counties.

Sales Tax on Motor Vehicles. Because motor vehicle sales taxes are collected at the county of registration, they can be measured directly. These data are also available from the *Annual Report 1985.* Table 3 illustrates that the motor vehicle tax ratio is related directly to the size of the largest city in an area: as the largest city gets smaller, the ratio diminishes. The ratio of motor vehicle sales taxes to income for metro Nebraska is 1.04; relative to population it is 1.11. For counties with large cities, the ratios are 1.00 and 0.95; for counties with small cities they are 0.95 and 0.91; and for rural counties they are 0.90 and 0.84.

Individual Income Tax. Individual income tax is reported by county of residence of the person or household filing the tax, although the incomes may have been earned elsewhere. These data, therefore, were used as reported in the Department of Revenue's *Annual Report 1986.*

Table 3 shows that residents of metropolitan areas of the state pay a higher percentage of income tax than their shares of personal income and population would suggest. The ratio to income is 1.16, and the ratio to population is 1.23. The ratios decline as the size of the largest city in each county group gets smaller. The ratios for counties with large cities are 1.00 and 0.94; for counties with small cities the ratios drop to 0.81 and 0.77; and for rural counties the ratios are 0.66 and 0.61.

Corporate Income Tax. Corporate income tax cannot be measured directly by the area where the income was earned. Instead it must be estimated. Nonfarm private earnings, as reported in the U.S. Bureau of Economic Analysis' *Local Area Personal Income* (1988), was used to estimate corporate income tax. To illustrate, if an area accounts for ten percent of the state's nonfarm private earnings, it is assumed that the area accounts for ten percent of the state's corporate income tax as reported in the *Annual Report 1986* of the Department of Revenue. Not all corporations that pay corporate income taxes in Nebraska have employees in Nebraska, however, so this allocation method may overstate the actual amount of corporate income taxes originating in Nebraska.

Figures based on this allocation scheme show that a disproportionate share of corporate income tax is drawn from metropolitan counties. The ratio to income is 1.25, and the ratio to population is 1.32. Counties with large cities pay taxes roughly equal to their shares of income and population, with ratios of 1.02 and 0.96. The ratios for counties with small cities are 0.69 and 0.66. For rural counties the ratios fall to 0.48 and 0.44. This is a reflection of the employment base in the state's regions, as businesses in small-city counties and rural counties are more likely to be smaller and operated as proprietorships rather than corporations.

Other Sales-Related Taxes. Two other sales-related taxes are included in the analysis: tobacco and liquor taxes. These taxes were allocated to the sets of counties using a method similar to that for the sales tax.

From table 3, we can see that the ratios for the tobacco tax are higher for nonmetropolitan counties than they are for metropolitan counties. Within the nonmetropolitan grouping, counties with large cities recorded the highest ratios and were followed by small-city counties and rural counties. All three of the nonmetro regions recorded ratios larger than 1.0.

Liquor taxes are also reviewed in table 3. When compared to income, the liquor tax ratios show little variation among areas. Compared to population, however, we can see that the range of ratios begins to widen, from a high of 1.06 for metro counties to a low of 0.89 for rural counties.

Expenditures

To analyze the pattern of Nebraska state government expenditures, three classes of state spending were used: state aid to local governments, wages and salaries paid to state government employees, and public assistance and related payments. Together these categories account for the majority of state expenditures.

State Aid to Local Governments. State aid to local governments is reported annually by the Nebraska Department of Revenue in a report series titled *State Funds Distributed to Local Government Subdivisions*. Because some funds are not distributed to individual counties, they could not be aggregated into the county groups used in this chapter. The data in tables 2 and 3, therefore, do not include funds allocated to governmental subdivisions that are comprised of multi-county areas (for example, natural resource districts, educational service units, and Nebraska technical colleges).

Table 3 shows that state aid goes disproportionately to nonmetropolitan areas, while metropolitan areas receive less than their income and population shares. Within the nonmetropolitan counties, the ratios of aid to personal income and population increase as the size of the largest city in the county decreases. Large-city counties have ratios close to 1.0, while rural counties have the highest ratios (1.26 and 1.17).

State aid is received by various types of local governments. Table 3 indicates that the ratios differ by governmental subdivision and by county grouping. State aid to counties, townships, and fire districts and additional state aid goes disproportionately to nonmetropolitan counties; but state aid to miscellaneous districts goes more heavily to metropolitan areas. State aid to cities and villages and to school districts all have ratios close to 1.0 for each group of counties.

Large-city counties receive a percentage of state aid that is closest to their shares of personal income and population. Compared to income the ratio is 1.04, and compared to population it is 0.99. The highest relative shares of aid in large-city counties go to cities and villages and to school districts, where these counties have the highest ratios of all nonmetropolitan counties. The lowest shares of state aid in large-city counties accrue to fire districts and miscellaneous districts.

Small-city counties generally fit in the middle of the nonmetropolitan counties. Their ratio of state aid to income is 1.09 and to population is 1.05. Almost all categories of state aid for this group of counties have ratios close to or exceeding 1.0. The highest relative share of aid is for townships, and this is followed by fire districts, counties, and additional state aid. The lowest share of aid for small-city counties goes to miscellaneous districts.

Rural counties receive relatively more state aid than any other group of counties, when compared to income and population. The ratio to income is 1.26 and to population is 1.17. In rural counties, state aid to counties, townships, fire districts, and additional state aid all have ratios that greatly exceed 1.0 and are usually higher than any other county grouping. On the other hand, state aid for cities in rural areas falls below the other area ratios.

Wages and Salaries. The second category of expenditures consists of wages and salaries paid to state government workers. These data come from the Nebraska Department of Labor's *1985 Nebraska Employment and Wages*. As might be expected, given the location of the state capitol in Lincoln and the University of Nebraska in Lincoln and Omaha, metropolitan areas receive the highest proportion of wages and salaries paid by the state. The ratios for metropolitan counties are 1.46 compared to income and 1.55 compared to population. For nonmetropolitan areas the respective ratios are 0.55 and 0.52.

Within the nonmetropolitan counties, the ratios decline as the size of the largest city declines. Counties with large cities have a greater presence of state government, as some departments maintain offices and other facilities in these counties. The ratios for these counties are 0.84 compared to personal income and 0.79 compared to population.

Small-city and rural counties receive a much smaller relative share of the wages and salaries paid out by the state government, but they do receive some benefit from the operation of state government. The ratios for these two regions fall between 0.40 and 0.32.

Public Assistance and Related Programs. Another way state money is disseminated throughout Nebraska is through public assistance and related programs. Although many of these programs are funded, in part or in whole, by the federal government, they are administered by state agencies and reflected in the state government budget. Public assistance expenditures are reported annually by the Nebraska Department of Social Services.

Table 3 shows that public assistance expenditures are slightly more likely to accrue to the state's metropolitan counties. The ratio to income is 1.03 and to population is 1.10. For nonmetro counties, large-city counties record the highest ratios, with a ratio of 1.06 compared to income and 1.00 compared to population. Small-city counties receive the lowest relative share of public assistance, with respective ratios of 0.86 and 0.82.

Expenditures for the Aid to Dependent Children (ADC) program show the most variation among regions and are dominated by the metropolitan counties. For metro counties the ratio to personal income is 1.21 and to population is 1.28. The share of ADC expenditures received by counties with large cities is roughly equal to the shares of income and population. For the

two remaining nonmetropolitan area categories, however, the ratios fall below 1.0, to 0.59 and 0.64.

The relative distribution of state supplement expenditures is similar for the state's metropolitan and nonmetropolitan counties, but within nonmetro counties, large-city counties record the highest ratios (1.27 to income and 1.20 to population).

Food stamps is an assistance category where metropolitan counties and large-city counties receive a large portion of expenditures relative to income and population. Large-city counties record the largest ratios.

The ratios for Medicaid are similar across regions (close to 1) with the exception of rural counties. Medicaid is the only public assistance category where rural counties receive a larger portion of expenditures than their income and population. This is likely to indicate a high proportion of older residents.

The final category of public assistance is adult and family contracted services. It also favors metropolitan counties with a ratio to income of 1.06 and to population of 1.13. The respective ratios for nonmetro counties are 0.94 and 0.89. As is the case for most of the other assistance categories, large-city counties have larger ratios than the other two nonmetro county groups.

Reviewing public assistance expenditures also points out an apparent inconsistency. Residents of nonmetropolitan counties have lower per capita incomes than do metropolitan county residents, and within nonmetropolitan areas, per capita incomes decline as the size of the largest city gets smaller. Even though public assistance payments are based on need, nonmetropolitan counties, especially rural counties and counties with small cities, account for a disproportionately smaller share of public assistance expenditures.

Summary of Patterns

After reviewing each tax and expenditure category separately, it is easy to lose sight of the relative distribution within a set of counties. This section summarizes the relationship of taxes and expenditures for each set of counties. Figures 2 through 5 in this section provide visual comparisons of each group's percentage of taxes paid, expenditures received, and personal income and population represented. The figures are equivalent to reading down a column in table 2.

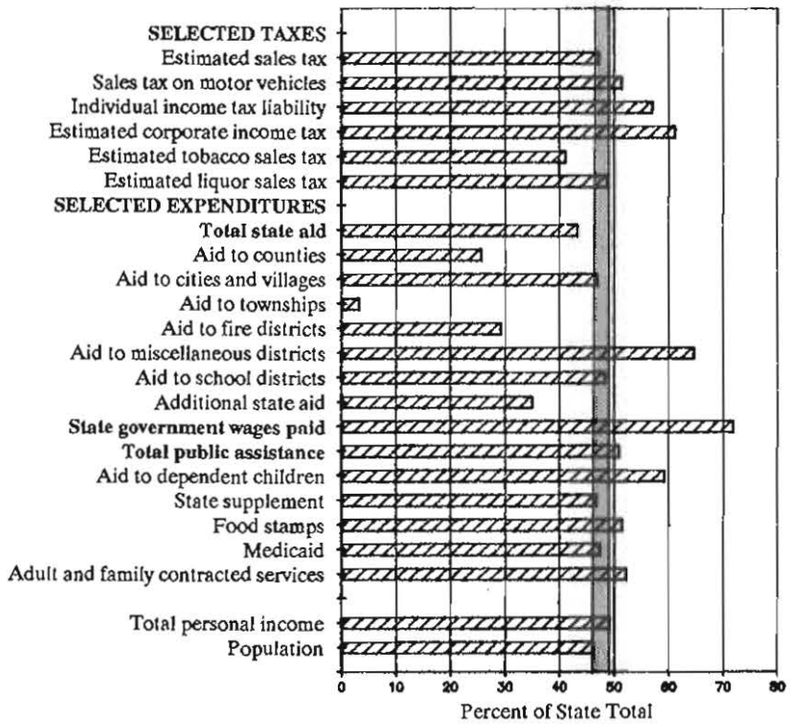
The vertical bar on each graph represents the range between the proportion of total state population and personal income that the county group accounts for. Any tax or expenditure item to the left of the bar represents less than the group's share of population and income. Any tax or expendi-

ture item to the right of the vertical bar represents a greater share than the group's population and income.

Metropolitan Counties. As shown in figure 2, metropolitan counties account for 49.4 percent of the personal income and 46.5 percent of the population in Nebraska. Such counties generally account for a higher share of taxes than their population or income suggests. The biggest discrepancies occur for individual and corporate income taxes. Sales-related taxes, on the other hand, are comparable to income and population. The percentage of taxes paid by these counties range from a low of 41.4 percent for the tobacco tax to a high of 61.5 percent for corporate income tax.

Metropolitan counties also receive a larger share of the state's expenditures. This is primarily due to the large state government presence in Lincoln. Among the four county groupings, metropolitan counties receive

Figure 2 - Selected Taxes and Expenditures for Nebraska's Metropolitan Counties, 1985



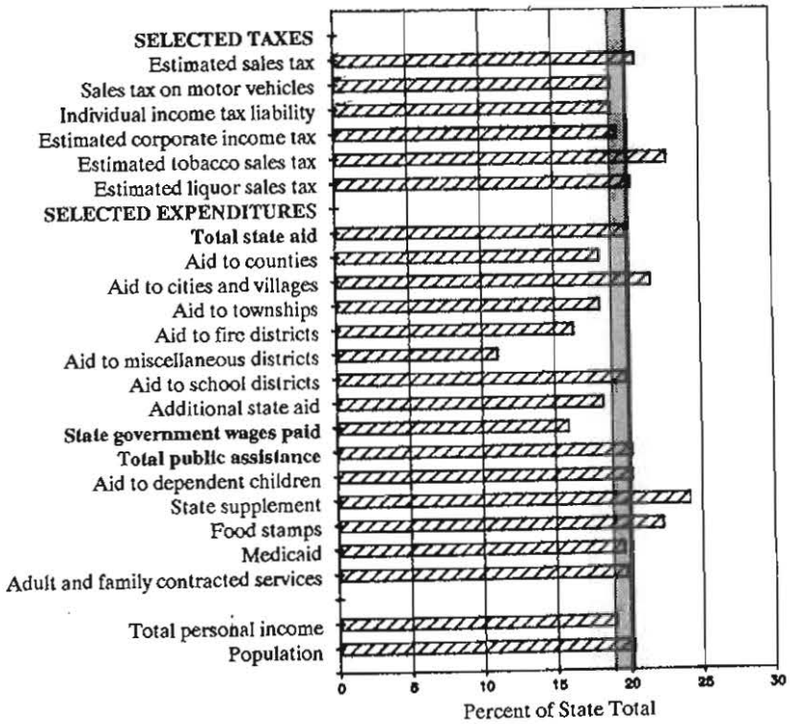
Source: Table 2.

the smallest ratios of state aid to income and to population. Governmental subdivisions in these counties receive 43.6 percent of total state aid. State aid expenditures range from a low of 3.5 percent of the aid for townships (Washington County is the only metropolitan county that has active townships) to a high of 64.9 percent for miscellaneous aid.

Metropolitan counties receive 51.1 percent of the state's public assistance payments, ranging from a high of 59.5 percent of the ADC payments to a low of 47.0 percent of state supplement.

Large-City Counties. Figure 3 shows that counties with large cities generally account for taxes and expenditures proportionate to their income and population. They earn 19.1 percent of Nebraska's personal income and hold 20.3 percent of its population.

Figure 3 - Selected Taxes and Expenditures for Nebraska's Large-City Counties, 1985



Source: Table 2.

There is little variation in the percentages of taxes paid by this group of counties. With the exception of tobacco taxes, the share of taxes paid is in the 19 to 21 percent range.

Most of the expenditures received fall in this same range: state aid is 20.0 percent and public assistance is 20.3 percent. Wages and salaries of state employees, on the other hand, are 16.0 percent. Within the state aid category, these counties receive a high of 21.7 percent of the aid to cities and villages and a low of 11.2 percent of the aid to miscellaneous districts. Their shares of public assistance spending range from 19.7 percent for Medicaid to 24.3 percent for state supplement payments.

Small-City Counties. These counties are close in population and income shares to large-city counties, but they generate less taxes and receive less state spending. Small-city counties account for 19.0 percent of Nebraska's total personal income and 19.8 percent of its population.

Figure 4 shows that other than state aid, most small-city county tax and expenditure categories account for smaller percentages of the respective state totals. Taxes range from 21.6 percent for tobacco tax to 13.0 percent for corporate income tax. The tobacco tax is the only tax where small-city counties are responsible for more than their percentages of the state's population and income.

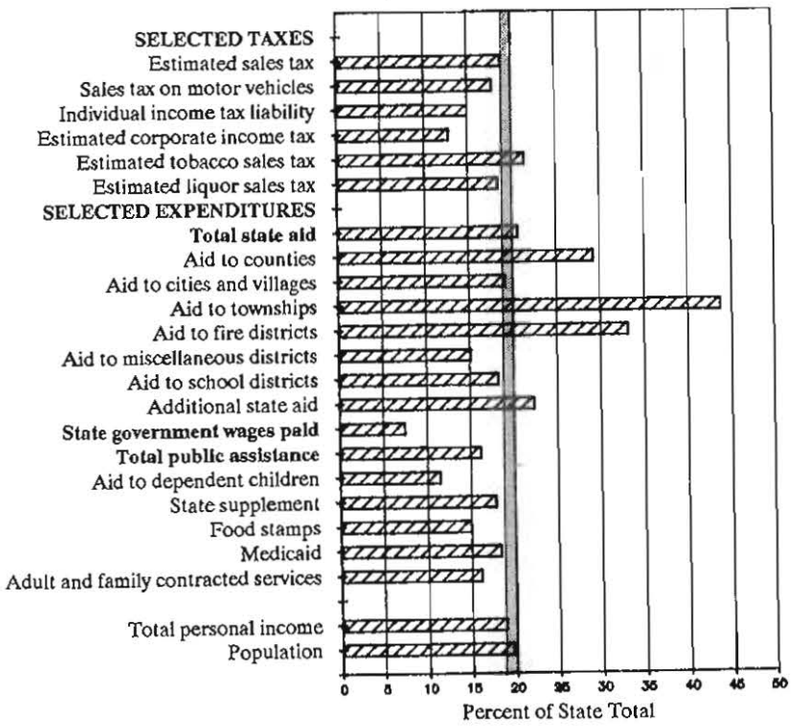
On the expenditure side, these counties receive 20.8 percent of the state aid and 16.3 percent of public assistance expenditures, but only 7.6 percent of state government wages and salaries. Except for state aid to school districts and miscellaneous districts, state aid for small-city counties is near or above 20 percent of the state total. At 43.9 percent, state aid to townships accounts for the largest share of an individual aid category. The largest percentage of public assistance expenditures comes from Medicaid at 18.5 percent, and the smallest comes from ADC at 11.6 percent.

Rural Counties. Figure 5 shows that rural counties exhibit a pattern similar to small-city counties. They account for a lower percentage of state taxes and also receive a lower percentage of many state expenditures, especially state government wages and salaries. This group of counties receives 12.5 percent of the state's personal income and contains 13.4 percent of the state's population.

Rural counties account for 5.9 percent of the corporate income taxes paid and 14.1 percent of the tobacco taxes. The percentages of income taxes paid fall far below population and income percentages, while sales-based taxes are comparable or slightly below.

State aid to rural counties amounts to 15.7 percent of the Nebraska total, while public assistance is 12.2 percent and wages and salaries only come to 4.3 percent. Within the state aid category, aid to townships accounts for 34.3

Figure 4 - Selected Taxes and Expenditures for Nebraska's Small-City Counties, 1985



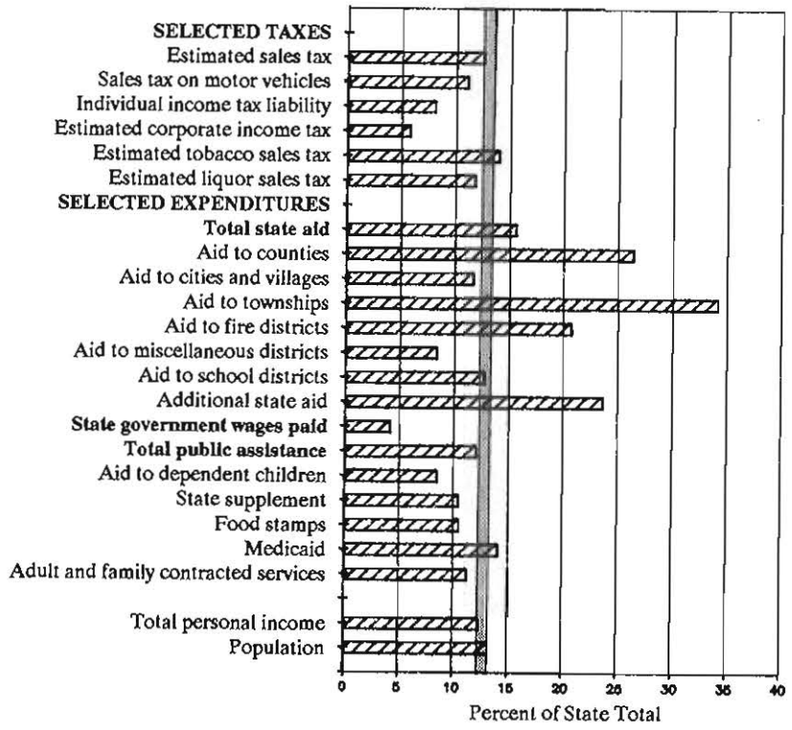
Source: Table 2.

percent of the state total, and aid to county governments accounts for 26.5 percent. The largest relative share of public assistance expenditures comes from Medicaid (14.2 percent) and the smallest from ADC (8.6 percent).

Lincoln MSA

Because of the major presence of state government activities in the Lincoln area, tax and expenditure information was also tabulated for the state without Lancaster County. This affected totals for the metropolitan counties, which then included Douglas, Sarpy, Washington, and Dakota counties. Because there was little change in most of the ratios, tables containing the adjusted data can be found in Appendix A at the end of this chapter. As expected, the largest change occurred for the ratios relating to wages and salaries.

Figure 5 - Selected Taxes and Expenditures for Nebraska's Rural Counties, 1985



Source: Table 2.

With Lancaster County removed, the state wages ratios for the remaining metropolitan counties dropped significantly but remained above 1.0 (1.13 to personal income and 1.23 to population). All nonmetropolitan regions showed gains, but large-city counties made the biggest jump, overtaking even the metro ratios. Their ratio of state wages to income is 1.37, and to population it is 1.30. This suggests that large-city counties have a sizable presence of state government facilities that is overshadowed when Lancaster County is included in the analysis.

Policy Choices and Recommendations

The information presented in this chapter indicates that geographic differences in the state's taxing and spending actions, though they may be unintentional, do occur. Furthermore, impacts vary across tax and expenditure categories. This chapter has shown that it is unlikely that county groups will receive and generate the same proportions of expenditures and taxes. Unless these impacts were intended, state policy makers must pay closer attention to the geographic distribution of their revenue and expenditure decisions.

As the Nebraska Unicameral continues with its New Horizons for Nebraska program, it should begin to incorporate an explicit regional perspective into its information base and decision-making process.

Although the geographic dimensions of state government taxing and spending decisions are rarely visible as a public issue, the current discussion surrounding LB775, the Employment and Investment Growth Act, illustrates how the benefits and costs of a particular program can have, or be perceived to have, differential geographic impacts. Another issue that Nebraska's policy makers will face in the near future is whether Nebraska should have a set of policies or strategies that focus on rural areas in general, and local governments in particular. Regardless of the choices made, policy makers must have information about and be aware of the potential geographic impacts of their decisions. As the Nebraska Unicameral continues with its New Horizons for Nebraska program, it should begin to incorporate an explicit regional perspective into its information base and decision-making process.

While the analysis presented in this chapter does not suggest any policy choices directly, it serves as an aid for evaluating alternative policies and strategies. Although a number of policy issues have dimensions that can be analyzed using a geographic approach, many of them can be highlighted under two broad themes: property tax relief and rural development.

Property Tax Relief

Property tax relief has been a popular topic in Nebraska for many years. Studies have shown that Nebraska's local governments are highly dependent on property taxes and that they receive proportionately less state aid than most other states' local governments do. Moreover, some county subdivisions are approaching their constitutional limit for property taxes.

Property tax relief can take many forms, but in the United States it generally has involved raising other taxes at the state level. These added

revenues are then used to provide increased state aid to local governments, which can, in turn, decrease their reliance on property taxes. Using this perspective, property tax relief can also be viewed as increased state aid to local governments.

Once a decision is made to provide property tax relief, many inter-related questions remain. First it must be decided which tax or combination of taxes will be used to raise the necessary revenue, and which units of local government will be supported through increased state aid. In addition, it must be decided whether income is to be redistributed from one area of the state to another area as part of the process. Each of these goals requires different taxing and spending strategies and possibly redesigned state aid formulas. These strategies can provide comparable changes in taxes and spending for all counties (although the base to which the additional aid is added may be unequal); can redistribute income to a group of counties; or can provide aid to a governmental subdivision without regard to the geographic impacts.

Earlier in this chapter it was shown that income-related taxes usually have a greater relative impact on metropolitan counties and counties with large cities, and a much smaller impact on rural counties and counties with small cities. On the other hand, sales-based taxes such as the sales and use tax and cigarette and liquor taxes have a somewhat greater impact on nonmetropolitan counties, especially those with larger cities. In other words, increasing income-related taxes will generate relatively more revenues from metropolitan counties, while increasing sales-related taxes will generate relatively more revenues from nonmetropolitan counties (compared to population and personal income).

Regardless of the actions policy makers take, they must have some concept of the redistribution they wish to achieve.

For an example on the expenditure side, the state might decide to provide property tax relief for rural counties. Because these counties receive proportionately more aid than would be expected, given their population and income, even an across-the-board increase in state aid would have the effect of targeting aid to rural counties. If state policy makers chose to further increase the share of state aid accruing to rural counties, they could either create an additional category of aid (such as critical rural infrastructure assistance), change the allocation formulas currently used in order to emphasize factors characteristic of rural counties, or provide more aid directly to county governments (the county subdivision with the highest ratios of expenditures to income and population for rural counties).

Other reallocation strategies would entail changes in both taxes and expenditures. If policy makers chose to raise the sales tax in order to provide increased state aid to schools, the geographic effect would likely be neutral: both sales tax and aid to school districts are relatively even across Nebraska's four groups of counties. On the other hand, raising the income tax in order to increase aid to education would draw more taxes, proportionately, from metropolitan counties and would cause a redistribution of income from metropolitan to nonmetropolitan (primarily rural) counties.

Regardless of the actions policy makers take, they must have some concept of the redistribution they wish to achieve. This can then be compared to current distribution patterns to help determine which actions will attain the desired distribution.

Rural Development

By most indications, Nebraska's nonmetropolitan counties have suffered losses of income and jobs and an erosion of their tax base during the 1980s. Many states have developed policies and programs to address the development needs of rural areas. It seems likely that Nebraska policy makers, too, will have to address rural issues in the future. It appears that state government activities have approximately equivalent tax and expenditure impacts on rural counties. These counties generate less taxes than their share of income and population, and the share of state government expenditures going to these counties is also less than their share of income and population. If Nebraska's policy makers decide to develop a set of strategies or policies focusing explicitly on rural areas, they will face a number of policy choices with differing regional impacts that may augment or hinder their efforts.

People or Places. The state can focus its policies on people or places. According to Smith (1988):

> Advocates of people strategies argue that the needs of rural people can best be met when location factors are isolated from strategies; in other words, place is secondary .... For example ... individual assistance programs, whether they be income maintenance or basic education programs to help the rural poor, need not be much different from programs for the urban poor.
>
> Advocates of place strategies, on the other hand, argue that people should be able to stay where they currently live; thus, efforts to meet human needs must focus on rural communities. Place-oriented advocates also argue that it is more efficient to use existing infrastructure investments than to relocate people. (Smith 1988)

Regardless of the strategy used, there is a geographic dimension. Expenditures for current people-oriented programs, such as public assistance, would tend to favor metropolitan counties and counties with large cities.

Place-oriented strategies that use existing state aid programs would tend to provide more dollars directly to rural counties and counties with small cities.

Growth Centers. Another basic choice that can be addressed in fashioning a rural strategy is whether to focus resources on communities or areas that are most distressed, or on growth centers in order to enhance their performance. SRI (1988) advocated building economic capacity in Nebraska's regional centers, which will cause the economies of those areas to grow, providing job opportunities for the surrounding areas. This strategy would develop not only the mid-sized communities, but many of the smaller communities as well. SRI's definition of growth centers included all of the large-city counties and several of the small-city counties described above.

Deichert and Smith (1988) also reviewed growth center strategies for Nebraska. They indicated that state government could differentiate among several sizes of growth centers. Most, however, conformed to the descriptions of large- and small-city counties used in this chapter.

One action consistent with a growth center strategy would be to increase state aid to large- and small-counties by changing allocation formulas or developing new categories of aid. However, another policy option would be to move some state government operations to these counties.

If state policy makers decide to pursue a growth center policy, they should focus state resources and programs on large- and small-city counties. Currently it appears that the opposite of a growth center strategy is being pursued. Large-city counties receive proportionately less of the state's expenditures but generate taxes comparable to their population and income base. Although these counties receive a share of state aid close to their income and population shares and account for a slightly higher share of public assistance, the lower proportion of state government wages and salaries, as compared to metropolitan counties, results in a lower level of expenditures.

Small-city counties exhibit a wider discrepancy than large-city counties. Taxes accounted for by this group of counties are proportionately lower and state aid is proportionately higher, but public assistance payments and state government wages and salaries received are much lower than for large-city counties. The net result is that their share of expenditures generally is lower than their share of taxes.

One action consistent with a growth center strategy would be to increase state aid to these counties by changing allocation formulas or developing new categories of aid. However, another policy option would be to move some state government operations to these counties, thereby adding to their wages, salaries, and service base. Given current and future changes in communications technology, it is likely that state government activities could be decentralized without losing efficiency or incurring additional costs. Obviously, any effort in this direction would have to be thoroughly evaluated on an agency-by-agency and program-by-program basis.

Conclusion

It has been argued that Nebraska is disconnecting, with urban and rural areas growing further apart. These areas, however, are linked through the operations of Nebraska's state government. Because policy decisions have differential impacts upon areas of the state, policy makers should try to identify these impacts. Decisions made by Nebraska's policy makers can rebuild linkages between the state's rural and urban areas, or they can intensify the rural-urban split.

Endnote

1. While the specific source of funds for individual expenditure categories cannot be identified, it should be remembered that many revenue sources are earmarked for specific spending activities. For example, much of the intergovernmental revenue received from the federal government goes for income maintenance and other social service payments.

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Appendix A - Nebraska State Government Revenue and Expenditure Pattern Data Set, Excluding Lancaster County, 1985

Because of the major presence of state government activities in the Lincoln area, it is useful to look at tax and expenditure information for the rest of the state alone. The tables in this appendix are similar to tables 2 and 3 in the chapter text, except for the deletion of Lancaster County.

Table 1a - Selected Taxes and Expenditures for Groups of Counties in Nebraska Excluding Lancaster County, 1985

	Metropolitan Counties	-Nonmetropolitan Counties- Total	Large-City Counties	Small-City Counties	Rural Counties
		-Thousand Dollars-			
SELECTED TAXES					
Estimated sales tax	73,766	112,195	44,512	40,641	27,042
Sales tax on motor vehicles	14,156	17,898	7,080	6,666	4,152
Individual income tax liability	126,507	126,033	56,461	45,206	24,367
Estimated corporate income tax	31,591	26,000	13,180	8,805	4,014
Estimated tobacco sales tax	6,229	11,934	4,665	4,392	2,877
Estimated liquor sales tax	4,937	7,061	2,827	2,583	1,651
Total taxes	257,187	301,122	128,725	108,293	64,104
SELECTED EXPENDITURES					
Total state aid*	120,459	200,718	70,969	73,922	55,827
State aid to counties	12,635	47,596	11,701	18,885	17,010
State aid to cities and villages	25,088	38,820	15,957	14,182	8,681
State aid to townships	4	112	21	51	40
State aid to fire districts	17	52	12	24	15
State aid to misc. districts	212	132	42	58	32
State aid to school districts	77,770	102,341	39,918	36,662	25,761
Additional state aid	4,733	11,664	3,318	4,060	4,287
State government wages paid	128,394	142,150	81,566	38,558	22,026
Public assistance and related programs*	113,555	138,443	57,697	46,178	34,567
Aid to dependent children	29,940	25,128	12,589	7,215	5,324
State supplement	1,745	2,743	1,260	931	551
Food stamps	19,129	22,819	10,603	7,139	5,076
Medicaid	58,877	83,101	31,299	29,296	22,506
Adult & family contracted services	3,864	4,652	1,946	1,597	1,110
Total expenditures	362,409	481,310	210,233	158,658	112,419
Total personal income	7,635,000	10,579,000	3,996,000	3,970,000	2,613,000
		-Persons-			
Population	541,200	858,700	325,200	318,100	215,400
		-Percent of State Total-			
SELECTED TAXES					
Estimated sales tax	39.7	60.3	23.9	21.9	14.5
Sales tax on motor vehicles	44.2	55.8	22.1	20.8	13.0
Individual income tax liability	50.1	49.9	22.4	17.9	9.6
Estimated corporate income tax	54.9	45.1	22.9	15.3	7.0
Estimated tobacco sales tax	34.3	65.7	25.7	24.2	15.8
Estimated liquor sales tax	41.1	58.9	23.6	21.5	13.8
Total taxes	46.1	53.9	23.1	19.4	11.5
SELECTED EXPENDITURES					
Total state aid*	37.5	62.5	22.1	23.0	17.4
State aid to counties	21.0	79.0	19.4	31.4	28.2
State aid to cities and villages	39.3	60.7	25.0	22.2	13.6
State aid to townships	3.5	96.5	18.2	43.9	34.3
State aid to fire districts	25.2	74.8	17.4	35.3	22.1
State aid to misc. districts	61.6	38.4	12.3	16.8	9.3
State aid to school districts	43.2	56.8	22.2	20.4	14.3
Additional state aid	28.9	71.1	20.2	24.8	26.1
State government wages paid	47.5	52.5	30.1	14.3	8.1
Public assistance and related programs*	45.1	54.9	22.9	18.3	13.7
Aid to dependent children	54.4	45.6	22.9	13.1	9.7
State supplement	38.9	61.1	28.1	20.8	12.3
Food stamps	45.6	54.4	25.3	17.0	12.1
Medicaid	41.5	58.5	22.0	20.6	15.9
Adult & family contracted services	45.4	54.6	22.9	18.7	13.0
Total expenditures	43.0	57.0	24.9	18.8	13.3
Total personal income	41.9	58.1	21.9	21.8	14.3
Population	38.7	61.3	23.2	22.7	15.4

*State fiscal year 1985-86.

Sources: *See* Table 2.

Table 2a - Ratios of Income and Population to Selected Taxes and Expenditures for Groups of Counties in Nebraska Excluding Lancaster County, 1985

	Metropolitan Counties	-Nonmetropolitan Counties- Total	Large-City Counties	Small-City Counties	Rural Counties
		-Ratio to Income-			
SELECTED TAXES					
Estimated sales tax	0.95	1.04	1.09	1.00	1.01
Sales tax on motor vehicles	1.05	0.96	1.01	0.95	0.90
Individual income tax liability	1.20	0.86	1.02	0.82	0.67
Estimated corporate income tax	1.31	0.78	1.04	0.70	0.49
Estimated tobacco sales tax	0.82	1.13	1.17	1.11	1.10
Estimated liquor sales tax	0.98	1.01	1.07	0.99	0.96
Total taxes	1.10	0.93	1.05	0.89	0.80
SELECTED EXPENDITURES					
Total state aid*	0.89	1.08	1.01	1.06	1.21
State aid to counties	0.50	1.36	0.89	1.44	1.97
State aid to cities and villages	0.94	1.05	1.14	1.02	0.95
State aid to townships	0.08	1.66	0.83	2.02	2.39
State aid to fire districts	0.60	1.29	0.79	1.62	1.54
State aid to misc. districts	1.47	0.66	0.56	0.77	0.65
State aid to school districts	1.03	0.98	1.01	0.93	1.00
Additional state aid	0.69	1.22	0.92	1.14	1.82
State government wages paid	1.13	0.90	1.37	0.65	0.57
Public assistance and related programs*	1.07	0.94	1.04	0.84	0.96
Aid to dependent children	1.30	0.79	1.04	0.60	0.67
State supplement	0.93	1.05	1.28	0.95	0.86
Food stamps	1.09	0.94	1.15	0.78	0.84
Medicaid	0.99	1.01	1.00	0.95	1.10
Adult & family contracted services	1.08	0.94	1.04	0.86	0.91
Total expenditures	1.02	0.98	1.14	0.86	0.93
		-Ratio to Population-			
SELECTED TAXES					
Estimated sales tax	1.03	0.98	1.03	0.96	0.95
Sales tax on motor vehicles	1.14	0.91	0.95	0.92	0.84
Individual income tax liability	1.30	0.81	0.96	0.79	0.63
Estimated corporate income tax	1.42	0.74	0.99	0.67	0.45
Estimated tobacco sales tax	0.89	1.07	1.11	1.06	1.03
Estimated liquor sales tax	1.06	0.96	1.01	0.95	0.89
Total taxes	1.19	0.88	0.99	0.85	0.75
SELECTED EXPENDITURES					
Total state aid*	0.97	1.02	0.95	1.01	1.13
State aid to counties	0.54	1.29	0.84	1.38	1.84
State aid to cities and villages	1.02	0.99	1.07	0.98	0.88
State aid to townships	0.09	1.57	0.78	1.93	2.23
State aid to fire districts	0.65	1.22	0.75	1.55	1.44
State aid to misc. districts	1.59	0.63	0.53	0.74	0.61
State aid to school districts	1.12	0.93	0.95	0.90	0.93
Additional state aid	0.75	1.16	0.87	1.09	1.70
State government wages paid	1.23	0.86	1.30	0.63	0.53
Public assistance and retated programs*	1.16	0.90	0.99	0.81	0.89
Aid to dependent children	1.41	0.74	0.98	0.58	0.63
State supplement	1.01	1.00	1.21	0.91	0.80
Food stamps	1.18	0.89	1.09	0.75	0.79
Medicaid	1.07	0.95	0.95	0.91	1.03
Adult & family contracted services	1.17	0.89	0.98	0.83	0.85
Total expenditures	1.11	0.93	1.07	0.83	0.87

*State fiscal year 1985-86.

Sources: *See* Table 2.

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